OFFICIAL PUBLICATION OF THE PROCEEDINGS AMERICAN ASSOCIATION OF TEXTILE CHEMISTS AND COLORISTS

OCTOBER 17, 1949
VOLUME 38, NO. 21

AMERICAN DYESTUFF REPORTER

DEVOTED TO TEXTILE CHEMISTRY • BLEACHING • DYEING • PRINTING • FINISHING

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for consumer appeal

The obvious way to judge the sales appeal of your whites is to display your goods and your competitors' side by side and allow a neutral party to choose what he or she would buy.

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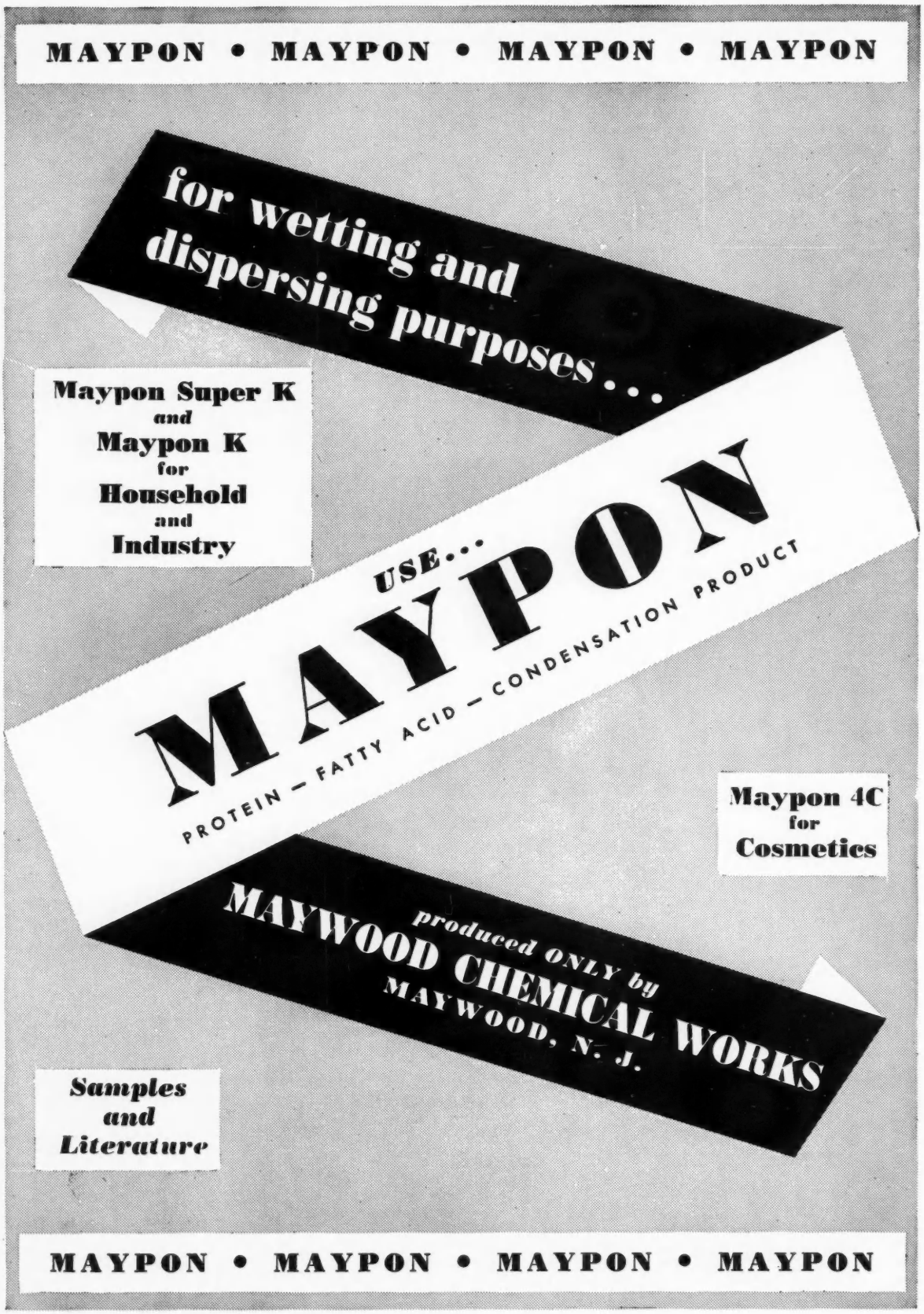
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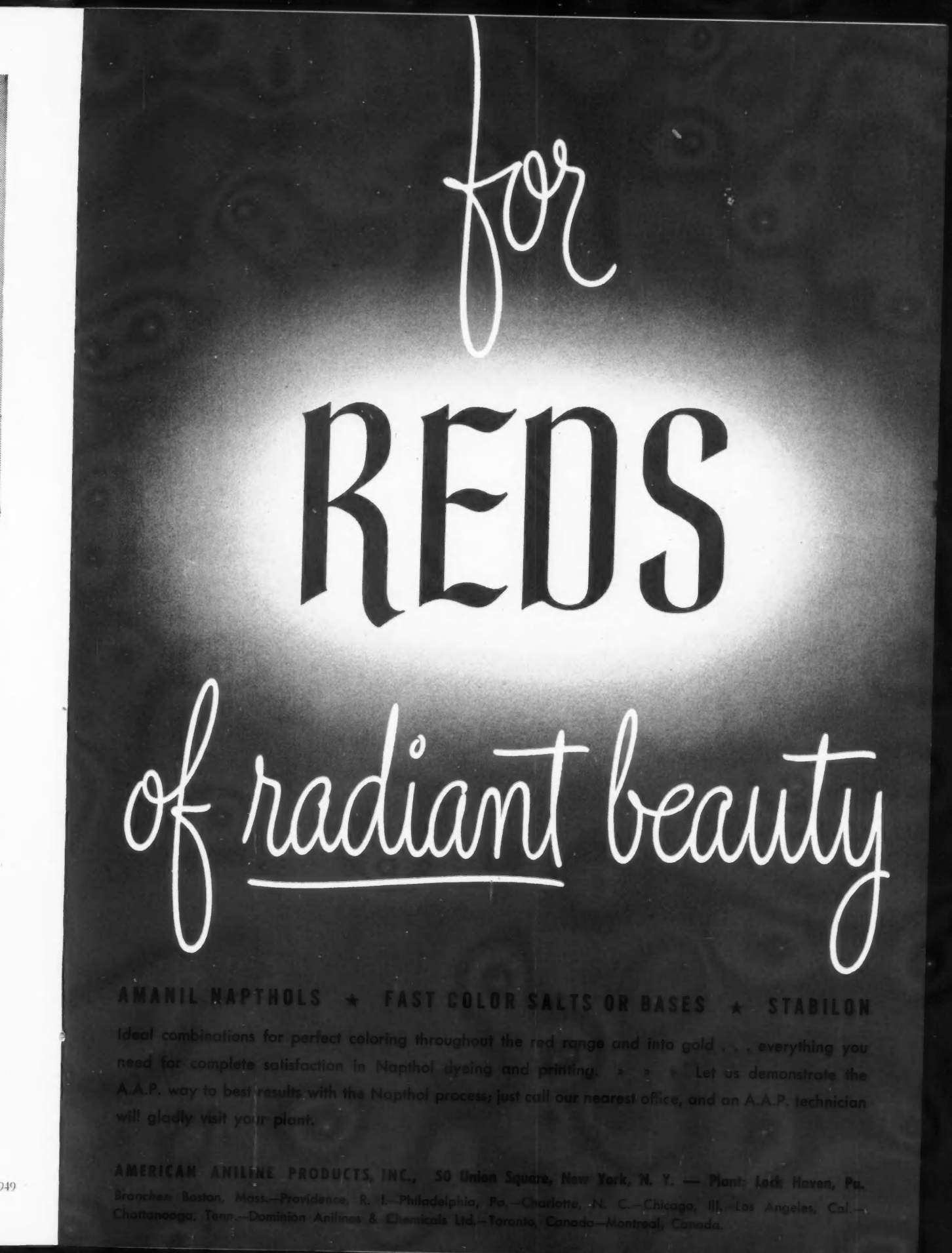
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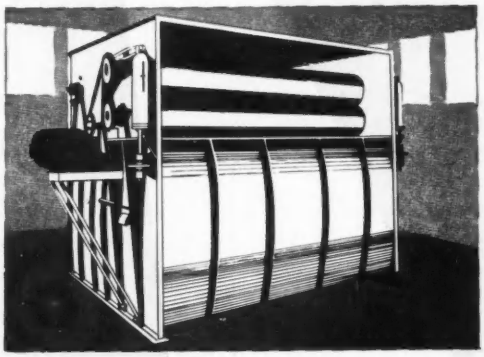

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by Dr. M. R. McCorkle, Use Research and Development Laboratory, Armour and Company

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Polyethylene glycol derivatives of fatty amines, fatty amides and fatty acids are available in commercial quantities from the Armour Chemical Division under the trade names Ethomeens, Ethomids and Ethofats.

Ethomeens are tertiary amines having one fatty alkyl group and two polyoxyethylene groups substituted on amino nitrogen:

$$R\text{-}N\begin{matrix}(CH_2CH_2O)_xH\\(CH_2CH_2O)_yH\end{matrix}$$

Ethomids are polyoxyethylene glycol substituted fatty amides having the general formula:

$$RC\text{-}N\begin{matrix}(CH_2CH_2O)_yH\\(CH_2CH_2O)_xH\end{matrix}$$

Ethofats are polyoxyethylene glycol esters of fatty acids having the general formula:

$$RC\text{-}O\ (CH_2CH_2O)_xH$$

The Ethomeens, Ethomids and Ethofats are supplied with fatty chains of from 12 to 18 carbon atoms with polyethylene glycol chains of 220, 440, 660 and 2200 molecular weights.

General Properties

The Ethomeens, Ethomids and Ethofats are all surface active agents. The Ethomeens are predominately nonionic but exhibit mild cationic properties because they are tertiary amines. This cationic activity is more pronounced in the Ethomeen salts formed by neutralizing Ethomeens with acids. The Ethomids and Ethofats are nonionic. The materials are supplied as salt-free 100% active products. They vary from fluid liquids to soft pastes depending upon length and saturation of the fatty chain and the relative proportion of the polyethylene glycol residue. The latter structural characteristics also control the solubilities of Ethomeens, Ethomids and Ethofats. As the relative proportion of the polyethylene glycol residue increases, the products become more water soluble and correspondingly less soluble in non polar organic compounds. However, all these derivatives are water soluble or water dispersible. The more hydrophilic derivatives can be dissolved in non polar solvents by the use of coupling agents such as isopropanol, fatty acids, etc.

Chemical Properties

Ethofats are resistant to hydrolysis and, therefore, stable to mildly acid and alkaline conditions. Ethomids are even more stable showing little, if any, hydrolysis in strongly acid or alkaline media. Ethomeens, being tertiary amines, are extremely stable in strong acids or alkalis. They react with acids to form substituted ammonium salts and with alkyl halides to form quaternary ammonium compounds. The hydroxyl group on the polyethylene glycol residue can be acylated under suitable conditions. Ethomeens, Ethomids and Ethofats are unaffected by calcium, magnesium or other hard water ions. They are compatible with most all types of surface-active agents. These materials exhibit strong solvent action for a variety of organic compounds. They are also heat stable.

Suggested Applications

Formulation of low sudsing liquid or dry detergents for laundry, dish-washing, dairy and food plant equipment; scouring and cleaning of cotton and synthetic fibers; dry cleaning soaps; fruit and vegetable washes, furs . . .

Preparation of solvent and emulsion degreasers, buffing compounds, metal cleaners, polishes, waxes, auto cleaners, rug and upholstery shampoos . . .

Soaping prints and chenilles, leveling basic dyes, sulfur, vat and direct colors, rewetting, finishing, wool oiling, stripping vat and sulfur colors, softening cotton wool, leather and paper . . .

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Write today for free bulletin, "The Ethomeens, Ethomids and Ethofats," containing technical information and suggestions for use.

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Armour and Company
1355 West 31st Street, Chicago 9, Illinois
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Composition of Etho-Chemicals

LINKAGE	Molecular Weight of Polyethylene Glycol Additions				Fatty Alkyl Groups Present									
	Molecular Weight 220	Molecular Weight 440	Molecular Weight 660	Molecular Weight 2200	Caprylic	Capric	Lauric	Myristic	Palmitic	Stearic	Oleic	Linoleic	Linolenic	Rosin Acids
$-N\begin{matrix}(CH_2CH_2O)_xH\\(CH_2CH_2O)_yH\end{matrix}$	Ethomeen C/15	Ethomeen C/20	Ethomeen C/25	Ethomeen C/60	8	9	47	18	8	5	5	..	..	..
	Ethomeen T/15	Ethomeen T/20	Ethomeen T/25	Ethomeen T/60	..	..	..	..	25	30	45	..	..	..
	Ethomeen S/15	Ethomeen S/20	Ethomeen S/25	Ethomeen S/60	..	..	..	..	10	10	35	45	..	..
	Ethomeen 18/15	Ethomeen 18/20	Ethomeen 18/25	Ethomeen 18/60	..	..	..	..	6	93	1	..	..	..
$-CN\begin{matrix}(CH_2CH_2O)_yH\\(CH_2CH_2O)_xH\end{matrix}$	Ethomid HT/15	Ethomid HT/20	Ethomid HT/25	Ethomid HT/60	..	..	..	..	25	70	5	..	..	..
	Ethomid C/15	Ethomid C/20	Ethomid C/25	Ethomid C/60	8	9	47	18	8	5	5	..	..	..
	Ethomid RO/15	Ethomid RO/20	Ethomid RO/25	Ethomid RO/60	..	..	..	..	..	20	60	20	..	..
$-C(=O)-O\ (CH_2CH_2O)_xH$	Ethofat 242/15	Ethofat 242/20	Ethofat 242/25	Ethofat 242/60	..	..	..	..	..	..	15	15	..	70
	Ethofat 142/15	Ethofat 142/20	Ethofat 142/25	Ethofat 142/60	..	..	..	..	..	..	50	40	4	6
	Ethofat C/15	Ethofat C/20	Ethofat C/25	Ethofat C/60	8	9	47	18	8	5	5	..	..	..
	Ethofat 60/15	Ethofat 60/20	Ethofat 60/25	Ethofat 60/60	..	..	..	..	22	75	3	..	..	..

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complete color range brilliant shades of red, scarlet, orange, yellow, green, blue, violet, brown and black.

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GLYCERINE PRODUCERS' ASSOCIATION
295 Madison Avenue
NEW YORK 17, NEW YORK

Technical GLYCERINE NEWS

COATED FABRICS SLATED FOR ARMY. Increasing need of plastic materials for ordnance was stressed by government technicians recently. Among major items cited for immediate use were coated fabrics, many of which are made with alkyd resins that represent an important end use of glycerine. (T-1)

★ ★ ★

TAKES BRITTLENESS OUT. Fabrics which are brittle and lack fats can now be treated by machine with glycerine. The treatment removes brittleness, increases wearability, and improves the feel of the goods. (T-2)

★ ★ ★

GLYCEROL VISCOSITIES TABLE AVAILABLE. Miner Laboratories, headquarters for the Glycerine Producers' Association program of glycerine research, has prepared a table of viscosities of glycerol in aqueous solution from 0 to 100 per cent, at from 0 to 100 degrees C. To obtain your copy, check T-3 on the coupon below. (T-3)

★ ★ ★

NEW HIGH TENACITY YARNS. Yarns described as having a tenacity of 4-6 grams per dernier, and an elongation of 18 to 20 per cent, can now be made from acrylonitrile polymers, it was revealed recently. In the manufacture of fibers from the already polymerized raw material, glycerine is reported to play an important role. (T-4)

★ ★ ★

BETTER LAUNDERING. To improve the appearance of laundered fabrics, a new glycerine-containing preparation has been developed which is said to be effective when added to the final rinse water or to the starch bath. (T-5)

★ ★ ★

PLANT SAFETY HINT. If your workers use safety goggles, glycerine is a must. It's one of the best anti-fogging agents — and it's a good lens cleaner, too.

GLYCERINE PRODUCERS' ASSOCIATION, DEPT. 13
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☐ T-1 ☐ T-2 ☐ T-3 ☐ T-4 ☐ T-5

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- Hiltonaphthol AS-E
- Hiltonaphthol AS-BG
- Hiltonaphthol AS-PH
- Hiltonaphthol AS-ITR

FAST

- Hiltonil Fast Scarlet RC Base
- Hiltonil Fast Red B Base
- Hiltonil Fast Red GL Base
- Hiltonil Fast Bordeaux GP Base
- Hiltonil Fast Garnet GBC Base
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- Hiltosal Fast Red RC Salt
- Hiltosal Fast Scarlet 2G Salt
- Hiltosal Fast Orange GR Salt
- Hiltosal Fast Red 3GL Salt
- Hiltosal Fast Red GL Salt

BASES

- Hiltonil Fast Red ITR Base
- Hiltonil Fast Scarlet R Base
- Hiltonil Fast Scarlet G Base
- Hiltonil Fast Orange GC Base
- Hiltonil Fast Yellow GC Base
- Hiltonil Fast Blue B Base

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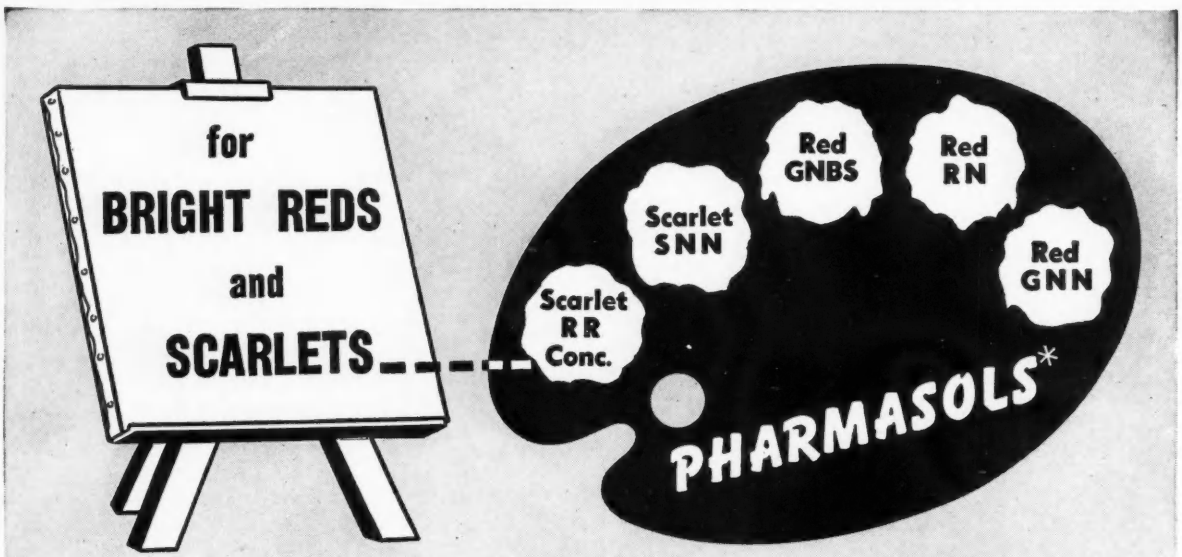

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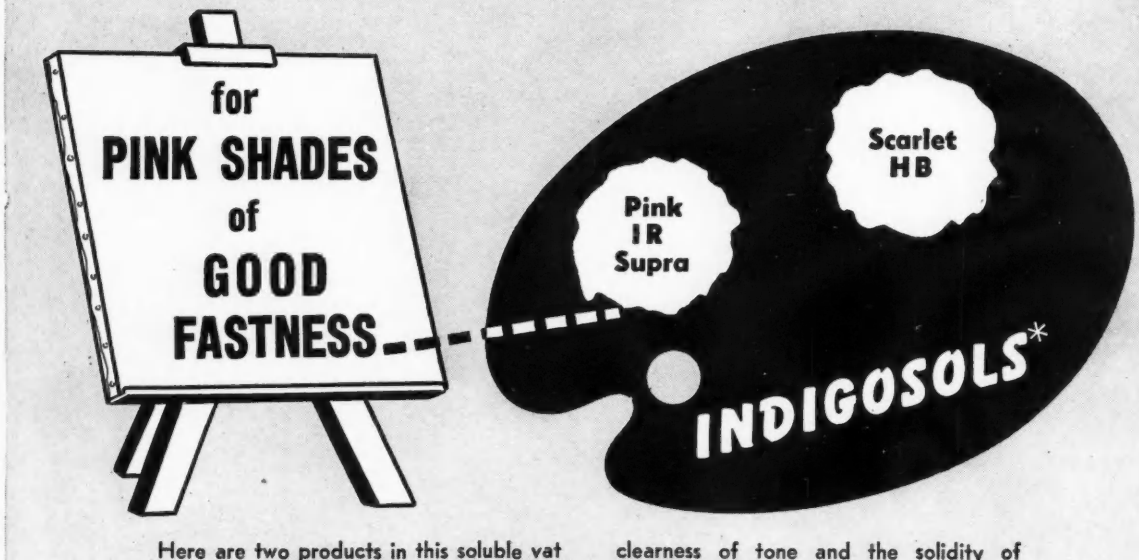

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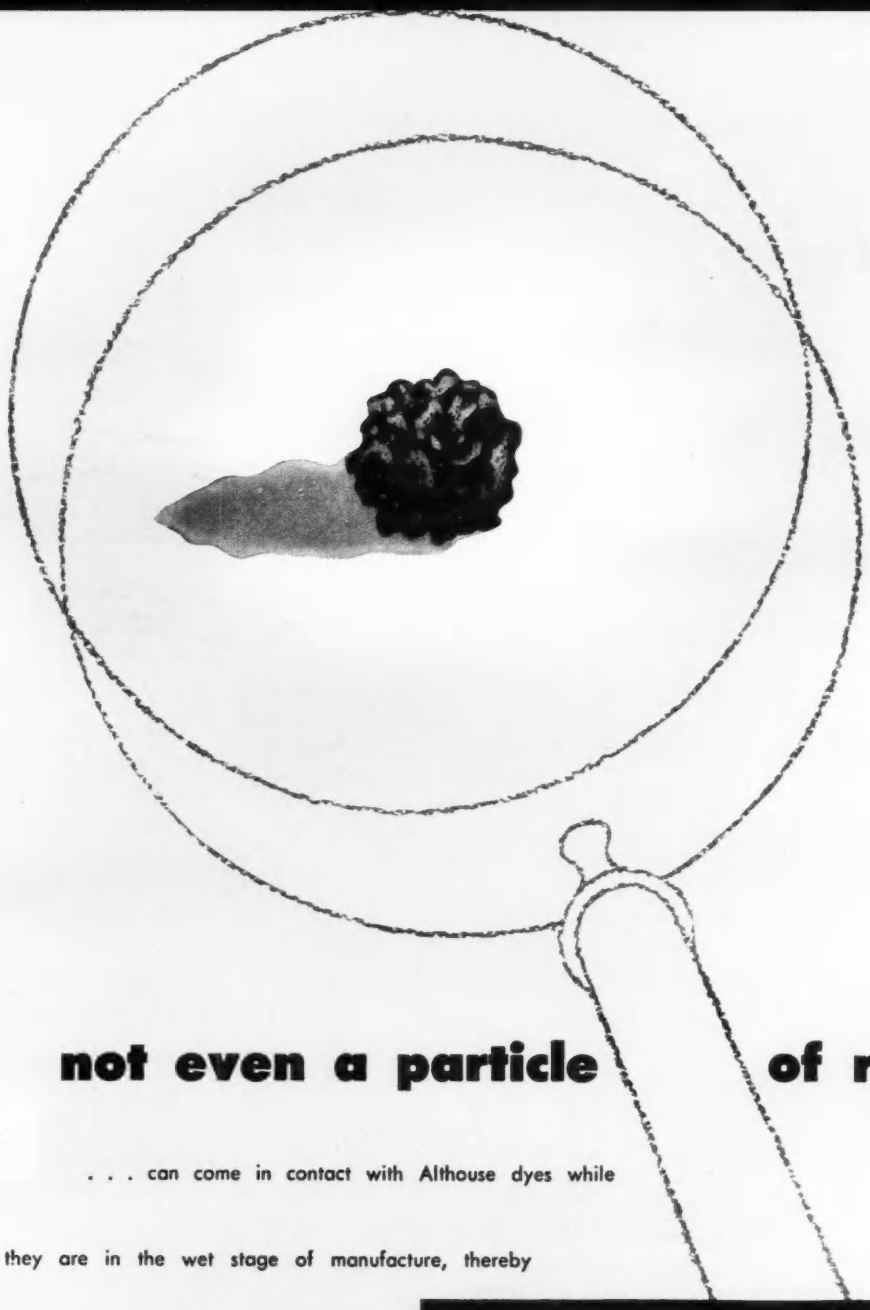

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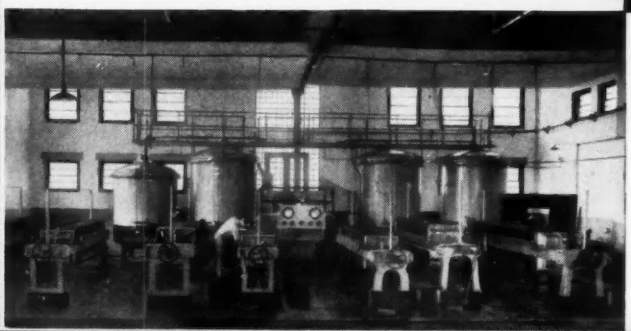

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VOLUME 38 October 17, 1949 NUMBER 21

DETERMINATION OF CHLORINE PICKUP

EDWARD R. ATKINSON and NEIL A. SARGENT
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WHEN textiles which have been treated with aminoplasts are subjected to commercial laundry bleach solutions the phenomenon of chlorine pickup occurs in which chlorine converts the resin to N-chloroamines. The resin in a sense thus protects the fiber from attack by chlorine and increases the fastness to chlorine of any dyes which may be present (1). In general, however, the phenomenon is undesirable since it gives rise to discoloration and tendering of the fabric.

As part of a program to develop effectiveness measures for the removal of bound chlorine from bleached fabric, the following quantitative method of measuring chlorine pickup has been developed. It employs the classical Bunsen method which is used for the analysis of chloroamines *(2)* and which has been applied qualitatively to textiles by Schwarze *(3)*.

TABLE I

Sample	*Run*	*Time to end-point, min.*	*N/100 thiosulfate, cc.*
A-1	1	8	27.80
		20	29.45
		120	30.45
A-1	2	8	24.39
		20	26.49
		45	27.84
A-1	3	5	25.20
		20	27.62
A-2	1	6	29.71
		20	32.33
		80	33.28
		300	33.28
A-2	2	6	29.88
		20	32.88
		75	33.56
		300	33.56
A-3	1	8	30.40
		20	31.78
B-1	1	8	13.48
		20	14.35
B-1	2	8	13.79
		20	14.59
B-2	1	8	12.14
		20	13.00
B-2	2	8	12.79
		20	13.54
C-1	1	8	12.98
		20	13.73
C-1	2	8	11.12
		20	12.57
C-1	3	5	14.11
		20	14.83
C-1	4	5	13.28
		20	14.28
C-2	1	5	14.88
		20	15.86
		80	16.11
		300	16.11
C-2	2	5	15.64
		20	16.84
		70	17.04
		300	17.04
C-3	1	8	15.05
		20	15.08

Sample Materials

(A).—Spun rayon fabric, 50 g., which had been treated with a methylolmelamine resin was worked at room temperature for five minutes in a solution of 6 cc. "Chlorox" (electrolytic sodium hypochlorite containing 45 g. available chlorine per liter) in 800 cc. distilled water. The sample was then washed in running water for two hours and allowed to dry at room temperature. All samples were analyzed within four days.

(B).—Same as for *(A)*, but used a fabric containing less resin.

(C).—Same as for *(A)*, but used only 2 cc. "Chlorox".

Procedure and Results

A 10.0 g. sample of chlorinated fabric was placed in a solution of 5g. potassium iodide in 500 cc. water and worked with a stout glass rod, during the subsequent titration; acidification of the reaction mixture was not required. Addition of N/100 thiosulfate *(4)* from a microburet was started at once to prevent a loss of iodine which was observed when titration was delayed. Starch was used at the end-point. Table I records the results obtained with a number of samples. Unchlorinated cloth liberated no iodine from potassium iodide.

The results indicate that the method described possesses adequate precision. For most purposes the end-point reached at eight minutes is satisfactory. The variation in chlorine pickup with the resin content of a fabric and with the strength of the bleach solution is apparent. Although our work was confined to spun rayon it seems reasonable to suppose that the method can be used with other materials as well.

Literature Cited

(1) A. Landolt, Textil-Rundschau *11*—201 (1947); J. Soc. Dyers Colorists *64*—93 (1948).
(2) United States Pharmacopoeia XII, Mack Printing Co., Easton, Pa., p. 128.
(3) Schwarze, Z. angew. Chem. *44*—44 (1931).
(4) Niederl and Niederl, "Micromethods of Quantitative Organic Elementary Analysis", Wiley, New York, 1942, second edition, p. 56.

THE RELATIONSHIP BETWEEN RESULTS OF DYNAMIC ABSORPTION TESTS USING HEXAGONAL AND CYLINDRICAL JARS

M. I. LANDSBERG, C. SEMBACH and R. BLUM
Textile Finishing Research Laboratory
Quartermaster Research and Development Laboratories

Abstract

Twenty-three fabrics providing a wide range of dynamic absorption values were evaluated in two types of glass containers. One of these, a six liter hexagonal jar, was the standard jar currently specified by the Quartermaster Corps for use in the conduct of the dynamic-absorption test. The other, a commercially available cylindrical container of approximtely the same dimensions as the hexagonal jar, was intended as a replacement for the standard hexagonal container, which could no longer be purchased.

The data when submitted to three different statistical tests of significance, showed that the two types of containers could be used interchangeably for the conduct of the dynamic absorption test. Accordingly, the commercially available cylindrical jar (commonly called a museum jar) was recommended as the standard, and the hexagonal jar was considered as its alternate.

Introduction

Specifications for the conduct of the dynamic-absorption test (Federal Specification CCC-T-191a, Supplement, 8 October 1945) require the use of a six-liter jar with hexagonal sides. Since this type of container is no longer available commercially, it becomes necessary to substitute one which can be readily procured. Comparative tests have been run using a proposed cylindrical jar and the standard hexagonal jar to determine whether their shapes significantly affected the dynamic-absorption values.

Experimental Procedures

Twenty-three fabrics which would provide a wide range of dynamic-absorption values were selected for this study. These fabrics varied in weave, weight, thickness, water-repellent treatment, and fiber content.

Test Methods.—Each of the twenty-three fabrics in this study was cut into thirty specimens. Each set of thirty specimens was randomly segregated into six samples, consisting of five specimens each*(1)*. Two samples (ten specimens) were used to obtain data in the hexagonal jar, two samples (ten specimens) were tested in the proposed cylindrical jar, and two samples (ten specimens) were used to ascertain the reproducibility of the hexagonal jar. In order to determine whether the time of testing in each of the jars would influence the result, the samples were agitated for a period of 10 minutes the first time and for 10-minute increments the second and third time, and for an additional thirty minutes the fourth time. Thus, each sample was agitated for 10, 20, 30 and 60 minutes and evaluated after each of these periods. The total testing time for each set of samples was one hour.

(1) In this report a sample is defined as the unit which is weighed at one time prior to immersion into the dynamic absorption jar. Each unit or sample is composed of five individual pieces of fabric (specimens).

The reproducibility of results obtained in the hexagonal jars was ascertained after a 20-minute period only.

The apparatus and procedures described in Federal Specification CCC-T-191a and Supplement were followed in the evaluation of the two jars. Two samples, each consisting of five 8-by-8 inch specimens cut on a 45-degree bias were tested in each container at a time. The weight of each sample (five specimens) was determined after a minimum conditioning period of four hours at a temperature of 70°F., and a relative humidity of 65 ±2 per cent. After weighing, the ten individual specimens were placed in each of the test jars one at a time. The standard hexagonal container is described in the above specification and the proposed jar is shown in Figure 1. Each jar contained two liters of distilled water at a temperature of 80 ± 2°F. After immersion of the above samples, the jars were tightly sealed and rotated at 55 rpm. for a ten minute period by means of a suitably geared motor.

At the end of the period of rotation the samples were removed and separated into their component parts of five specimens each. Each specimen was first passed through a set of standard wringer rolls having a dead-load pressure of 60 pounds and so geared as to permit the specimens to pass through at the rate of one inch per second. Then the same specimens were passed through the wringer between two 10-by-10 inch standard blotters. The five specimens constituting one sample were weighed as a unit and the difference between the wet and conditioned weights multiplied by 100, and divided by the conditioned weight was taken as the dynamic-absorption value (per cent water absorbed) of the sample. This procedure was repeated for the second set of five specimens in the same jar and for the two samples ((ten specimens) in the other jar.

The same ten specimens were then immersed in two liters of clean distilled water and again rotated for ten minutes, and the dynamic-absorption value determined in the manner described previously. The same procedure was repeated a third and fourth time, with the period of rotation increased to 30 minutes for the fourth test. The reproducibility of the hexagonal jar was determined using one 20-minute period of rotation only.

Statistical Techniques.—The dynamic-absorption results were subjected to the following tests of significance to determine whether differences noted were caused by chance or by difference between the round and proposed hexagonal jars. The three tests used were (1) sign test, (2) paired variate "t" test, (3) practical significance test.

The sign test was used to ascertain whether the absorption values obtained in one type jar, were greater than the absorption values obtained in the other type a significant number of times. The assumption is made that jar differences do not influence the test results, and that any variations in dynamic-absorption values are due to chance alone. If the assumption is correct then one half of all the values obtained in the hexagonal jar should be higher, and the other half lower than the results obtained in the

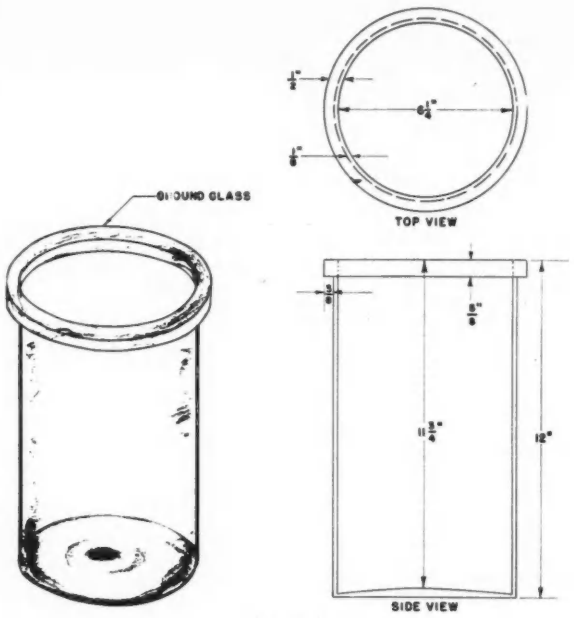

Figure 1

round jar on the same series of fabrics. Consequently, there should be an equal number of positive and negative differences in absorption values between the two types of jars. These positive or negative differences are obtained by subtracting the dynamic-absorption values for the round jar from the dynamic absorption values obtained from tests on the same fabrics in the hexagonal jar. The probability of obtaining by chance a greater excess of positive or negative differences than found experimentally can be determined. If this probability is low (less than 0.05) it can be said, with the assurance of being wrong only five times in a hundred, that the original assumption would be incorrect and that jar differences do influence the absorption values. If the probability is greater than 0.05 then the original assumption of no significant differences between jars can be accepted for practical purposes.

The "t" test, which is more sensitive than the sign test, can be used to judge whether the absorption values obtained in one type of jar were significantly higher than those obtained in the other. In this test not only are the signs but also the actual magnitude of the results of importance. By considering the variability of the differences, the probability of the average difference deviating from zero as a result of chance by an amount greater than that found experimentally can be determined. Again, as in the sign test, if this probability is 0.05 or less, the original assumption is incorrect and the observed differences are significant. On the other hand, if the probability is greater than 0.05 then the assumption of no significant differences between jars is accepted.

Finally, the average difference in the absorption value of the cylindrical and hexagonal jars can be compared with the average difference which might be expected in view of observed discrepancies between duplicate determinations in the standard hexagonal jar. Should the algebraic average of the difference between results of the two jars be no greater than the average difference of duplicate determinations in the hexagonal jar, it can then be said that there is no "practical" significant difference between the absorption values for the two jars.

Results and Discussion

Test results and differences between the results obtained in the two jars, and between duplicate determinations in the hexagonal jar, are shown in Tables I and II. Examination of the averages of test values obtained in the cylindrical and hexagonal jars and the differences between these averages indicate that the dynamic-absorption values are essentially the same for both containers. A comparison of the differences between cylindrical and hexagonal jars with the differences between duplicate determinations in the hexagonal jar are approximately the same, indicating that the shape of the jar has no effect on the absorption values. The only sample which showed a rather wide deviation in test value is the 32-oz. Melton treated with a non-durable type of water repellent compound. The deviation appears not only between determinations in the cylindrical and hexagonal jars, but also between duplicate determinations in the hexagonal jar. This would indicate that fabric rather than jar differences are the cause of the deviation. In this case, it is believed that the deviation is the result of uneven application of the water-repellent compound. *(2)*

TABLE I

Dynamic Absorption Values of Fabrics Treated in the Cylindrical and Hexagonal Jars

		Dynamic Absorption Values (Percent Absorption)							
		Cylindrical Jars (Agitation Time)*				*Hexagonal Jar* (Agitation Time)*			
	*Fabric Identification***	*10*	*20*	*30*	*60*	*10*	*20*	*30*	*60*
1143	5 oz. Poplin	20.40	22.15	22.55	23.95	21.20	22.45	23.30	23.85
2624	6.5 oz. Oxford	18.30	23.20	27.90	33.00	18.05	22.45	27.35	33.45
1642	5 oz. Poplin	16.55	18.35	19.90	20.35	16.10	17.90	19.00	19.80
3642	9 oz. Sateen	16.95	19.25	20.85	24.95	16.85	19.35	20.85	24.65
04Z	9 oz. Oxford	17.05	20.05	21.70	23.65	17.60	20.15	21.35	23.30
01Z	6.5 oz. Oxford	12.40	14.70	16.30	22.30	12.60	15.25	17.25	22.45
PZ	5 oz. Poplin	15.15	17.20	18.00	20.50	14.85	17.50	17.85	20.45
SZ	9 oz. Sateen	13.50	15.85	17.30	20.35	13.50	16.05	17.40	20.60
31410	9 oz. Sateen	21.10	24.75	26.15	28.15	21.50	24.30	25.40	27.20
TD	8.2 oz. Twill	24.20	31.60	36.85	43.60	22.65	30.05	34.70	42.50
X4	6 oz. Poplin	40.55	41.35	42.50	43.80	39.55	40.25	41.70	43.05
1–1	5 oz. Poplin	20.20	21.10	20.25	22.55	21.05	21.90	22.60	23.00
16	5 oz. Poplin	10.10	14.85	16.90	19.15	15.00	17.10	18.10	19.30
1–33	5 oz. Poplin	16.40	24.40	25.65	27.55	15.20	23.55	25.85	27.65
26	6.5 oz. Oxford	18.30	23.10	27.10	31.50	17.25	21.45	25.20	31.00
4–21	9 oz. Oxford	16.00	18.50	20.60	26.05	16.10	18.90	21.50	25.00
6–28	Byrd Cloth	13.40	13.55	14.70	16.95	11.95	13.40	14.00	17.50
5–0	8.2 oz. Twill	47.75	48.65	49.25	49.15	47.65	47.85	48.20	48.70
10–0	18 oz. Serge	50.35	51.85	52.55	53.75	50.15	52.20	52.80	54.50
10–35	18 oz. Serge	35.75	44.95	46.10	46.65	33.35	42.05	43.70	44.80
11–36	32 oz. Melton	44.70	64.65	81.70	103.20	31.00	46.85	60.30	80.25
7–0	3 oz. Nylon	11.05	12.00	11.95	12.20	11.75	12.20	12.40	12.00
7–29	3 oz. Nylon	8.70	10.40	10.65	11.70	8.95	10.70	11.15	12.20

* Average of two values.
** Nine representative water repellent compounds were used to treat the above fabrics.

(2) It is possible, however, that the precision of this test for heavy woolen fabrics may be low. If this is true, the dynamic-absorption test would be unsuitable for such materials. Further experimental work would have to be done with a sufficient number of heavy woolen fabrics to determine the precision of the test before a definite conclusion could be drawn. These findings, however, do not invalidate the results of these tests.

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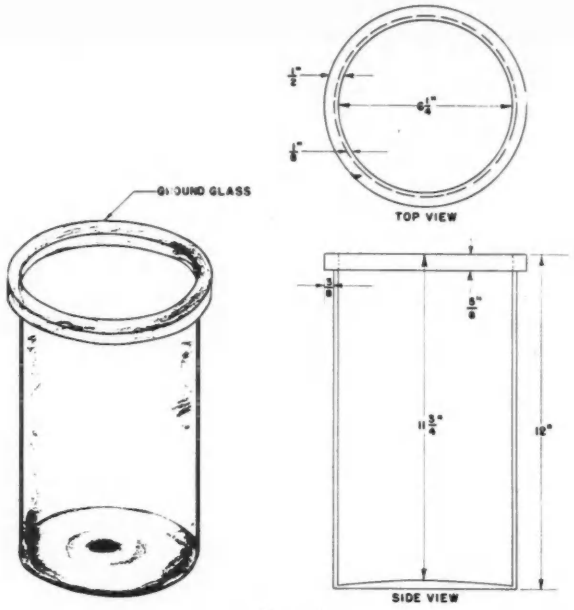

Figure 1

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26	6.5 oz. Oxford	18.30	23.10	27.10	31.50	17.25	21.45	25.20	31.00
4–21	9 oz. Oxford	16.00	18.50	20.60	26.05	16.10	18.90	21.50	25.00
6–28	Byrd Cloth	13.40	13.55	14.70	16.95	11.95	13.40	14.00	17.50
5–0	8.2 oz. Twill	47.75	48.65	49.25	49.15	47.65	47.85	48.20	48.70
10–0	18 oz. Serge	50.35	51.85	52.55	53.75	50.15	52.20	52.80	54.50
10–35	18 oz. Serge	35.75	44.95	46.10	46.65	33.35	42.05	43.70	44.80
11–36	32 oz. Melton	44.70	64.65	81.70	103.20	31.00	46.85	60.30	80.25
7–0	3 oz. Nylon	11.05	12.00	11.95	12.20	11.75	12.20	12.40	12.00
7–29	3 oz. Nylon	8.70	10.40	10.65	11.70	8.95	10.70	11.15	12.20

* Average of two values.
** Nine representative water repellent compounds were used to treat the above fabrics.

Results and Discussion

Test results and differences between the results obtained in the two jars, and between duplicate determinations in the hexagonal jar, are shown in Tables I and II. Examination of the averages of test values obtained in the cylindrical and hexagonal jars and the differences between these averages indicate that the dynamic-absorption values are essentially the same for both containers. A comparison of the differences between cylindrical and hexagonal jars with the differences between duplicate determinations in the hexagonal jar are approximately the same, indicating that the shape of the jar has no effect on the absorption values. The only sample which showed a rather wide deviation in test value is the 32-oz. Melton treated with a non-durable type of water repellent compound. The deviation appears not only between determinations in the cylindrical and hexagonal jars, but also between duplicate determinations in the hexagonal jar. This would indicate that fabric rather than jar differences are the cause of the deviation. In this case, it is believed that the deviation is the result of uneven application of the water-repellent compound. *(2)*

(2) It is possible, however, that the precision of this test for heavy woolen fabrics may be low. If this is true, the dynamic-absorption test would be unsuitable for such materials. Further experimental work would have to be done with a sufficient number of heavy woolen fabrics to determine the precision of the test before a definite conclusion could be drawn. These findings, however, do not invalidate the results of these tests.

Table III shows the results of the statistical analysis of the data. The assumption that no significant difference exists between the two jars is confirmed by these data. The sign test shows a minimum probability of 0.40 of obtaining by chance a greater number of an excess of one sign than experimentally found. This probability is well within the 0.05 limit; there is therefore no consistent difference in absorption values for the two jars. The "t" test shows a minimum probability of 0.20 of obtaining by chance a greater deviation from zero of the average of the difference than experimentally found. Again, the probability is well within the limit and the differences between jars are not statistically significant. Finally the average difference in dynamic absorption values obtained in the cylindrical and hexagonal jars for all of the fabrics is only 0.98 per cent while the average difference between duplicate determinations in the hexagonal jar is 2.00 per cent. Since there is a greater average difference between the results obtained in the hexagonal jar than between results obtained in the two types of jars, it becomes apparent that on a practical basis the differences between jars are not significant.

TABLE II

Reproducibility of Absorption Values for Hexagonal Jar (20-Minute Test Time)

	Percent Absorption						
	Determination I			Determination II			Differences of Averages I and II
Fabric	1	2	AV.	1	2	AV.	
1143	22.5	22.4	22.45	22.0	21.8	21.90	0.55
2624	22.5	22.4	22.45	19.6	19.4	19.50	2.95
1642	17.5	18.3	17.90	17.4	18.0	17.70	0.20
3642	19.6	19.1	19.35	19.0	19.9	19.45	0.10
04Z	19.8	20.5	20.15	22.1	20.0	21.05	0.90
01Z	15.7	14.8	15.25	19.0	19.6	19.75	4.50
PZ	17.5	17.5	17.50	18.7	18.1	18.40	0.90
SZ	16.3	15.8	16.05	17.1	16.8	16.95	0.90
31410	24.4	24.2	24.30	19.6	20.0	19.80	4.50
X-4	40.4	40.1	40.25	43.8	41.9	42.85	2.60
1-1	21.9	21.9	21.90	21.4	21.0	21.20	0.70
16	17.1	17.1	17.10	17.6	17.5	17.55	0.45
1-33	22.9	24.2	23.55	26.9	24.4	25.65	2.10
26	21.5	21.4	21.45	20.8	20.5	20.65	0.80
4-2	18.1	19.7	18.90	17.4	18.1	17.75	1.15
6-28	14.1	12.7	13.40	15.9	15.7	15.80	2.40
5-0	46.9	48.8	47.85	48.5	48.8	48.65	0.80
10-0	52.3	52.1	52.20	50.9	51.6	51.25	0.95
10-35	42.5	41.6	42.05	42.3	43.8	43.05	1.00
11-36	46.5	47.2	46.85	65.7	55.7	60.70	13.85
7-0	12.0	12.4	12.20	14.8	11.9	13.35	1.15
7-29	10.5	10.9	10.70	9.6	10.9	10.25	0.45

TABLE III

Tests for Significance of Differences Between Dynamic-Absorption Values Obtained in the Cylindrical and the Hexagonal Jar

		Sign Test		"t" Test		Test of Practical Significance		
Test Time (Min)	No. of Samples (N)	"t" Value	Approx. Prob. Level of "t" Value	"t" Value	Approx. Prob. Level of "t" Value	Av. of Differences of Cyl. Minus Hex. Jar Values	Av. of Differences of Dupl. Determinations in Hex. Jar	Significance of Differences between Cyl. and Hex. Jar Values
10	23	0.417	0.60*	0.996	0.30*			
20	23	0.000	1.00	1.224	0.20	—0.98	2.00	Not Significant
30	23	0.000	1.00	1.159	0.20			
60	23	0.834	0.40	1.217	0.20			

* Since these Probability levels are well above the 0.05 level of significance, the differences in absorption values for the two types of jars are not significant.

Conclusions

There is no significant difference between dynamic-absorption test values in the cylindrical and the hexagonal jar based on three tests for statistical significance. Therefore, a cylindrical jar with a diameter of 6¼ inches and a length of 11¾ inches fitted with a suitable cover can be specified as the standard jar for the dynamic-absorption test; the hexagonal jar may be used as an alternative.

Acknowledgments

Dr. J. Fred Oesterling, Chief, Textile Finishing Research Laboratory, and Mr. Norman E. Roberts, Historian, for their constructive criticisms and editorial comment.

Reaction for Amino and Imino Groups in Textile Materials

G. R. WALLIN

TARUGI and Lenci developed a method for determining NH_2 and =NH groups which is a very valuable procedure but doesn't seem to have come into wide usage (1). This method was developed in 1912. It is said to be more sensitive than Nessler's reaction.

This method has been successfully used for the qualitative determination of the above groups in textile materials. It offers a ready and simple procedure and should be useful to textile chemists.

The method consists of placing a few crystals of phenol upon the material and adding a few drops of sodium hypochlorite containing at least 3 per cent active chlorine and an alkalinity equivalent to 4 per cent sodium hydroxide. In the presence of amino acids, amino aldehydes, and in general all substances containing the groups NH_2 or =NH, an intense blue color is formed.

When applied to thoroughly bleached material a negative reaction is obtained. Unbleached material gives a positive reaction. If one pads on such materials as monoethanolamine or ammonium hydroxide a positive reaction is obtained. The method is sensitive enough to respond to ammonia fumes in the air, and this factor must be taken into consideration when doing the test.

This is a useful procedure which has apparently been neglected and which should be useful in other fields than textile chemistry. It could readily be adapted for quantitative proceedures. It should be useful in analyzing compounds containing amines.

Literature Cited:

(1) Tarugi-Lenci, Boll. Chim farm 50, 907-(1912) or Merck Index, Method 3989.

THE DYEING OF BROAD-WOVEN NYLON FABRICS*

DR. S. G. TURNBULL, JR.

IN the May 5, 1949 issue of Fairchild's "Daily News Record," the following statements are made, and I quote, "Nylon is rocketing into a position from which, according to one's viewpoint, it promises or threatens to dominate the hosiery, underwear and knitted outerwear trades and, eventually, virtually every other phase of the apparel industries. In all branches of the apparel trades, nylon is viewed as a serious menace to every other fiber. Many in the trade, however, feel that—regardless of the ultimate effect of nylon on the textile trades—it now is giving the hosiery, underwear and knit outerwear fields, as well as the apparel industry, a much-needed shot in the arm."

While these above remarks have been directed mainly toward a few specific end uses, we feel that you men in the trade will agree that almost daily nylon is being considered for new uses in which it will supersede or complement other commercial fibers. The diversification of uses into which nylon is introduced is based upon its many outstanding fiber properties, high among which are its strength and durability, its elasticity, its ability to be dried quickly, and also, the ease with which it can be dimensionally stabilized by a heat-setting treatment. In fact, nylon is now running cotton a close race for the title, "Most Versatile of the Commercial Fibers."

We have recently seen a return to a highly competitive buyer's market. In order to capture and hold our fair share of the market in the specific lines of merchandise which earns for us our daily bread and butter, it behooves us as technical men to become as familiar as possible with all aspects of the preparation, dyeing and finishing of nylon in broad-woven goods.

Preparation of Nylon Goods for Dyeing

As with fabrics from all fibers, it is necessary that nylon piece goods be thoroughly cleaned in order to obtain optimum results in the dyeing operation. This is particularly true when the fabric is to be heat-set before dyeing, as otherwise the oils, sizes, tinting agents, etc. may be themselves set in the fabric, and converted by oxidation, polymerization or other reactions to materials which are extremely difficult to remove, and accordingly may act as "resists" which lead to unlevel or otherwise unsatisfactory dyeing. Generally speaking, sheer nylon goods are scoured in rope form on a beck, while medium and heavy weight fabrics are scoured best on a jig or continuous boil-off range. It is important that the temperature and tension in scouring be closely controlled so that wrinkle formation be avoided. Scouring assistants consist mainly of the weaker alkalies, such as soda ash, tetra sodium pyrophosphate, trisodium phosphate, etc., used in conjunction with good detergents or soaps. Occasionally, when the fabrics are highly contaminated with greases or oils, it will become necessary to use solvent-type scouring assistants.†

Subsequent to the scour, the goods must receive a thorough rinse, or else scouring assistants left in the fabric may themselves cause dyeing difficulties.

Most of the illustrations in this paper were intended for screen presentation in full color. Hence, black and white reproductions do not do full justice in all cases.

Bleaching of Nylon Fabrics

Nylon as manufactured, in particular the delustered form, is a white fiber and requires no bleaching. Sometimes, however, it becomes necessary to remove organic matter or dirt which has accumulated during creeling, slashing or weaving. Also, in blends of nylon with other fibers, it may be necessary to whiten the other component of the blend.

Over the years one of the best bleaching agents for all-nylon fabrics has proved to be sodium chlorite, sold under the tradename, "Textone." Best results with this agent are obtained by bleaching at the boil in the presence of a small quantity of acetic acid. No assistant is necessary.

If it is necessary to bleach blended fabrics containing other fibers in addition to nylon the blended material can be bleached satisfactorily by the method ordinarily used for the other fiber in the blend. It can be safely said that in so doing, the nylon will probably suffer less loss in strength than will the other fiber in the blend. The relative stability of nylon to bleaching agents is illustrated by the data presented in Table I, which show the effect of common bleaching agents on nylon at various temperatures.

TABLE I
Effect of Bleaching Agents on Nylon Yarn Tenacity
40-13-½-Z-200 Yarn
40:1 Liquor to Goods Ratio
One Hour at a Full Boil

Treatment	*Yarn Breaking Strength (Grams) (Av. 10 Determinations)*
Untreated Controls	206
Scoured at 200°F.	205
Scoured and Bleached with	
5% "Textone" + 5% Acetic Acid	200
2% "Ondal" A	200
4% $NaHSO_3$ + 3% Acetic Acid	209
5% "Clorox" + 3% TSP	205
5% "Albone" C + 3% TSP	206

Nylon can also be whitened by use of a fluorescent whitening agent, such as "Pontamine" White BR, used in quantities of less than 0.10% based on the fabric weight. This agent exhausts well from a bath made slightly acid with acetic acid at 150°F. Care must be exercised to use this and other whitening agents with restraint, as excess quantities will actually give a duller white than the original fabric, rather than the brighter white normally desired.

Dyeing of Nylon Fabrics

Nylon has affinity for various members from all classes of dyestuffs. Practical considerations, however, limit the choice to a few dye classes, due mainly to deficien-

* Presented at the Wilmington Conference of Nylon Dyers and Finishers, sponsored by E. I. du Pont de Nemours & Co., Inc.

† See Dr. Smith's article in the August 23, 1949 issue.

cies within the other classes themselves. Basic colors find limited use due to their poor light fastness. Only a few sulfur colors, and in particular Sulfogene Fast Black NCL, show good affinity for nylon. The Naphthol dyes can be applied with the prepare and base in one bath, and subsequently be diazotized and developed in one operation in a second bath. However, we have not succeeded in obtaining on nylon the bright shades obtained on cotton nor have we obtained the light and crocking fastness that is required Work is being continued to obtain the desirable properties of the Naphthol dyes on nylon. Vat colors can be applied satisfactorily, although a higher dyeing temperature is required than for cotton, and these have excellent wet fastness on nylon. The light fastness is good in the violet, blue, green, olive, gray and black end of the dyer's spectrum, but not so good with the yellows, oranges, browns and reds. Nevertheless, vat dyes can be used satisfactorily in blends with cellulosic fibers, as will be described.

The following color types are the ones most widely used on nylon: acetate and developed acetate, selected directs and the acid types, including the level-dyeing, neutral-dyeing, "Chromacyl" and chrome color types. Of these, the acetate colors show the best dyeing properties, but the poorest fastness properties. The advantages of the acetate colors are :

(1) Better build-up on the fiber, leading to better success in obtaining heavy shades.

(2) Better transfer properties, (boiling on and off) which lead to better coverage of yarn irregularities, easier shade matching, and a greater versatility in the dyeing methods that can be used.

(3) Better dyeability over a fairly wide pH range.

The use of the developed acetate color class gives an improvement in wet fastness properties over that of the direct acetate class. However, the light fastness is not improved, and, moreover, a wide range of shades is not obtainable, as no yellows, oranges, bright reds or bright blues are available in the developed acetate class.

The remaining color classes mentioned previously, namely, the direct colors and all the acid-dyeing types, dye on nylon by a mechanism of salt-formation, in which the sulfonic or other acid group of the dye combines with the terminal amine groups of the nylon polymer to yield a relatively stable chemical linkage. The wet fastness properties of these types, particularly the chrome colors, vary from relatively good to excellent. In fact, a number of these types show better wash fastness on nylon than on wool.

A visual comparison of the relative wet fastness properties of the acetate, acid and chrome types is seen by examination of Figures 1 and 2.

Here, A.A.T.C.C. washings #1, #2, and #3 are shown on a nylon fabric dyed in heavy navy and medium blue shades with these various color types. It is seen that the chrome combination is outstanding, followed by the acid and acetate combinations in that order.

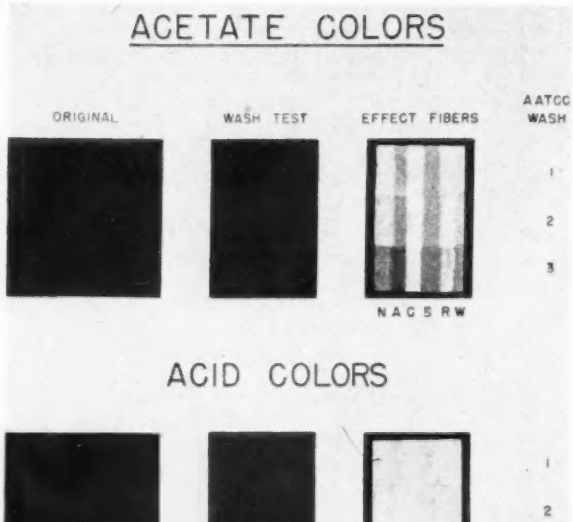


Fig. 1—Relative Wash Fastness of Acetate, Acid and Chrome Colors on Nylon in a Heavy Navy Shade.

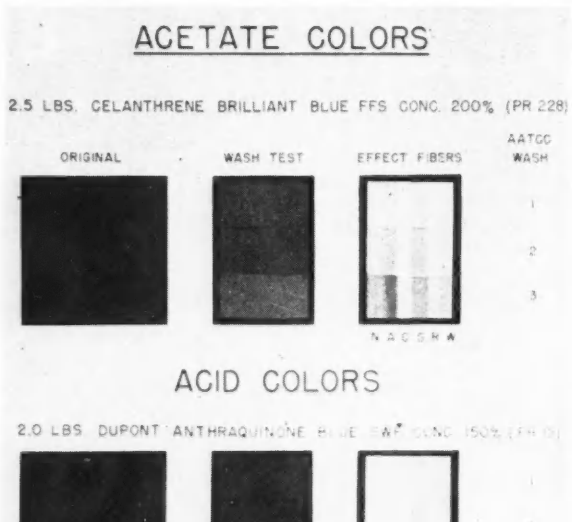


Fig. 2—Relative Wash Fastness of Acetate, Acid and Chrome Dyes on Nylon.

Light Fastness of Dyes on Nylon

Having established the relative superiority of the acid and chrome types insofar as wet fastness is concerned, the next logical question that will arise in your minds is this.

What about light fastness of these various dye classes on nylon? This question is one about which we could speak at length. Let us briefly say that wide variations exist in the light fastness on nylon as on other fibers, of the dyes within any one dye group. Some acetate colors in heavy shades, for example, will go for 100 hours in the Fade-Ometer with little or no break, while other acetate colors will break in 5 hours. The same can be said for acid, direct and chrome colors. Moreover, the light fastness of dyes on nylon cannot be predicted from their fastness on other fibers. I have seen a number of shades produced with selected acid and direct colors on nylon that will go for 200 hours in the Fade-Ometer with only a noticeable to an appreciable break. In general, we can say with certainty that the best light fastness on nylon is produced by use of selected acid and direct colors.

Among the available types, the following have very good fastness to light on nylon. We have not attempted to classify competitive types according to their light fastness.

"Chromacyl" Yellow N
DuPont Brilliant Paper Yellow Extra Conc. 125%
"Pontamine" Fast Orange 2GL
"Chromacyl" Orange R
"Chromacyl" Pink BN
"Pontamine" Fast Red FCB Conc. 150%
"Chromacyl" Bordeaux R
DuPont Anthraquinone Violet 3R
DuPont Anthraquinone Blue RXO
DuPont Anthraquinone Blue SKY
DuPont Anthraquinone Green GN
DuPont Neutral Gray L
"Pontachrome" Black TA

Our best acetate colors for light fastness on nylon are:

"Acetamine" Yellow CG
"Celanthrene" Brilliant Red Conc. 200%
"Celanthrene" Brilliant Blue FFS Conc. 200%
"Acetamine" Diazo Black 3B

At this time a word about the measurement of light fastness of dyes on nylon would be apropos. Over the years we have found that the Fade-Ometers must be checked more carefully for nylon than for other fibers in order to obtain results that can be duplicated from day to day. The humidity and, in particular, the temperature in the machine must be closely controlled, and the carbons faithfully changed on a regular basis. Also, the Fade-Ometers must be well calibrated from one to the others.

It is difficult to give an exact relationship between sun hour exposure and Fade-Ometer exposure. We have seen exposure results varying from one Florida sun hour per Fade-Ometer hour for the same apparent light break, to as high as four Florida sun hours per Fade-Ometer hour, depending upon the shade and dye combinations used. In the Wilmington area the relationship varies between two and five sun hours per Fade-Ometer hour. Where light and weathering fastness are of paramount importance, our best advice is to expose samples of the dyed fabric to the conditions most closely approximating those to which it will be exposed in service.

As a result of the application and fastness properties of the various dye classes just described, we find that where wet fastness properties are of secondary importance to level-dyeing characteristics, acetate colors are used almost universally. Examples are: women's nylon hose, lingerie, theater draperies, lining fabrics, etc. The acetate colors are applied at temperatures ranging from 150°F. to the boil, depending upon the type of fabrics being processed and the equipment available. However, it is best to operate at as high a temperature as possible in order to obtain good fabric penetration and color transfer. The acetate colors are usually applied from a slightly alkaline bath, using agents such as "Duponol" D Paste to keep the dyes in a highly dispersed state and to aid in color transfer.

Where acid, direct and chrome colors are used to obtain the best light and wet fastness properties, as required in upholstery and slip cover fabrics, ski suits, fabrics for foundation garments, and similar uses, we strongly urge that a closed jig be used where possible in order to obtain the highest possible dyeing temperature for the following reasons:

(1) Much better color penetration into the fabric and thence into the fiber will be obtained. This will result in better fastness properties and a more pleasing dyeing.

(2) Better color value and levelness will be obtained in the closed jig compared to that produced in the open jig.

(3) Chrome colors, which are very difficult or impossible to chrome to the true shade on the open jig, can be satisfactorily chromed on the closed jig.

(4) Blocking effects are slightly minimized at the higher temperature. By "blocking" we mean the "shutting out effect" which occurs in dyeing certain acid color combinations on nylon due to the low affinity for the nylon of one of the dyes, which prevents a dye with greater affinity from dyeing when the total concentration of dye present is greater than the saturation point of the dye which blocks. This effect has been described in detail by Stott (*American Dyestuff Reporter* 29 Nov. 25, 1940). The

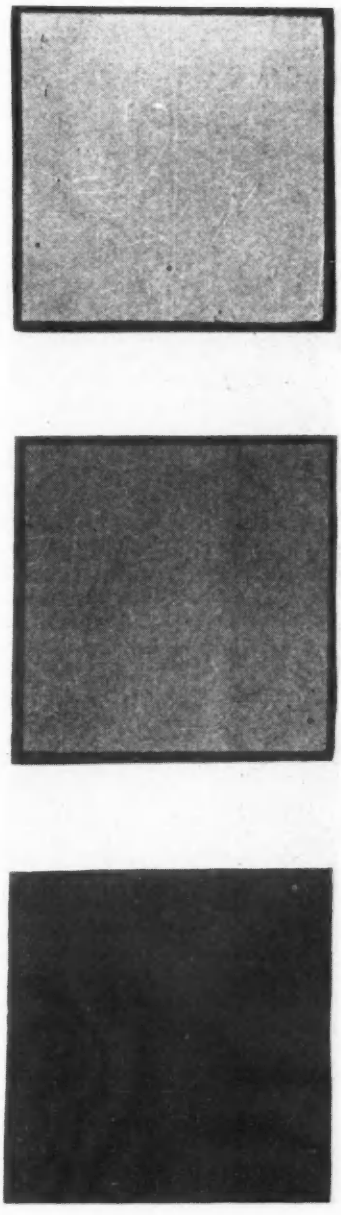
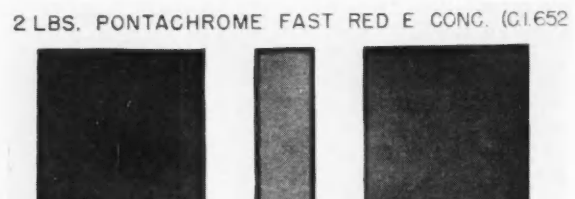


Fig. 3—Effect of Temperature on Color Value obtained in Jig Dyeing of an Acid Color Combination.
2.0 lbs. Chromacyl Bordeaux R (Pr. 145)
4.0 lbs. Chromacyl Orange R (Pr. 146)
0.3 lbs. DuPont Anthraquinone Blue RXO (C.I.—1076)
16 lbs. Formic Acid (87%)
Top—Open Jig 1½ hrs. at 160°F.
Center—Open Jig 1½ hrs. at 190°F.
Bottom—Closed Jig 1½ hrs. at 212°F.



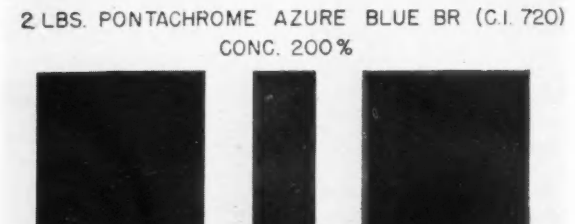


Fig. 4 (above)—Effect of Temperature on Chroming.

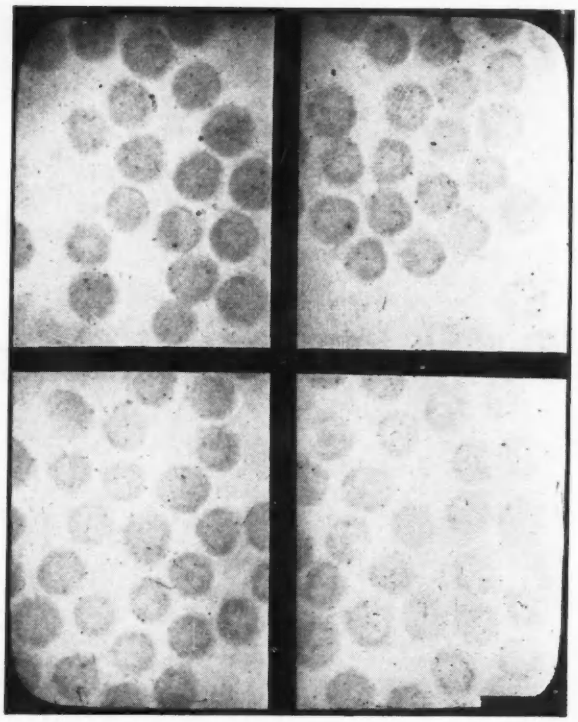


Fig. 5 (right)—Cross Section of 1% Dyeings of Acetamine Scarlet B
Top Left—"Zero" Time—240°F.
Top Right—1 Hour Time—240°F.
Bottom Left—"Zero" Time—212°F.
Bottom Right—1 Hour Time—212°F.

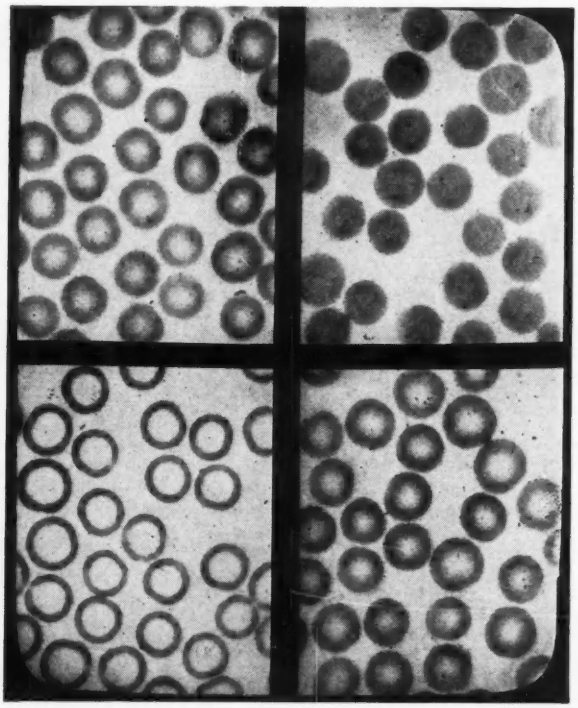


Fig. 6—Cross Section of 1.0% Dyeings of Du Pont Milling Red SWB Conc. 125%
Top Left—"Zero" Time at 240°F.
Top Right—1 Hour Time at 240°F.
Bootom Left—"Zero" Time at 212°F.
Bottom Right—1 Hour Time at 212°F.

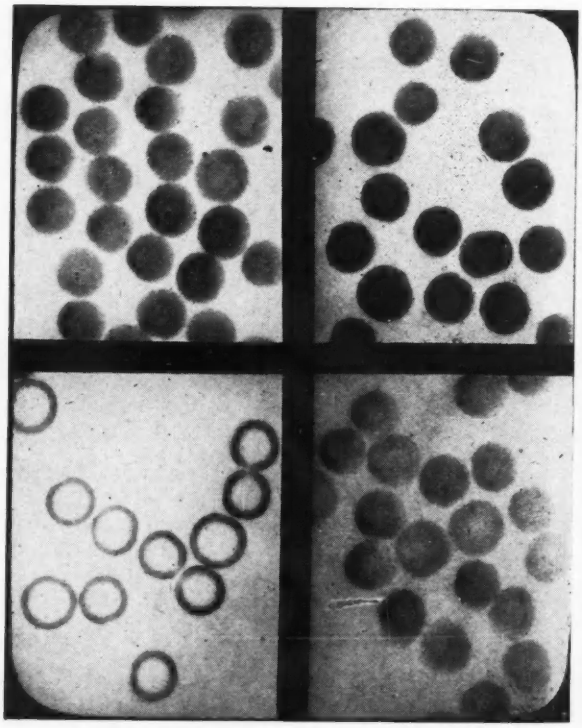


Fig. 7—Cross Section of 1.0% Dyeings of Pontamine Fast Red FCB Conc. 150%
Top Left—"Zero" Time at 240°F.
Top Right—1 Hour Time at 240°F.
Bootom Left—"Zero" Time at 212°F.
Bottom Right—1 Hour Time at 212°F.

use of the closed jig minimizes this effect due to a slight increase in the practical saturation points of acid dyes resulting from increased temperature.

Moreover, savings in steam and power will result where closed jigs are used consistently.

These benefits resulting from the use of the closed jig are illustrated in figures 3 to 7.

Improvement in Level-Dyeing Properties of Acid Colors on Nylon Fabrics

As most of you know, acid and direct colors do not transfer on nylon as do the acetate colors, even at elevated temperatures. It is for this reason that acid colors show better wet fastness properties.

Any variations in tension during manufacture of the nylon yarn, as in spinning, drawing or coning, or in subsequent mill operations, as in creeling, slashing, quilling and weaving, may cause warp streaks or filling barré to be apparent in the dyed fabric. Defects in the fabric are more pronounced when acid and direct colors are used in dyeing than appear with acetate colors. The question may be raised, "What has DuPont done to reach optimum yarn uniformity, and what are the prospects for improved uniformity of yarns in the future?"

The DuPont Company has exerted every effort to give you optimum uniformity of yarns during its manufacturing operations. The result of this work is the so-called "Merge Number System," in which yarns of similar physical and chemical properties are segregated by quality-control methods. Orders are filled to any one buyer from the same "Merge Number," so that all the yarns delivered on the order are as closely alike in properties as possible.

Moreover, the research staff of the Nylon Division has studied many variations in its process to produce a more uniform yarn. At the present time an experimental yarn is being investigated for uniformity in dyeability with acid colors. The success achieved with this yarn, compared with the dye results obtained with regular yarn, is shown in figures 8 and 9.

At the present time we are unable to say exactly when this experimental nylon in the various denier yarns will reach the market. However, there is hope that some of your dyeing problems may be alleviated, provided commercial production of this yarn is possible on technical and economic grounds.

New Dyes for Nylon

Nylon has now been upon the market for about 10½ years. During this time the question has undoubtedly been raised many times, "When are the dye manufacturers going to give us dyes for nylon that will have the excellent all-round fastness properties of the vat dyes on cotton"?

The answer to this question is not so simple. With the exception of the four war years, when most all of the resources of our company—research, production and otherwise—were directed toward successful prosecution of the war effort, the DuPont Company has been diligent in its search for better dyes for nylon. Other dye manufacturers have likewise been exceedingly active in this field. Most of the dyes that have appeared on the market that are designated as "dyes for nylon" are selected acid dyes that are good

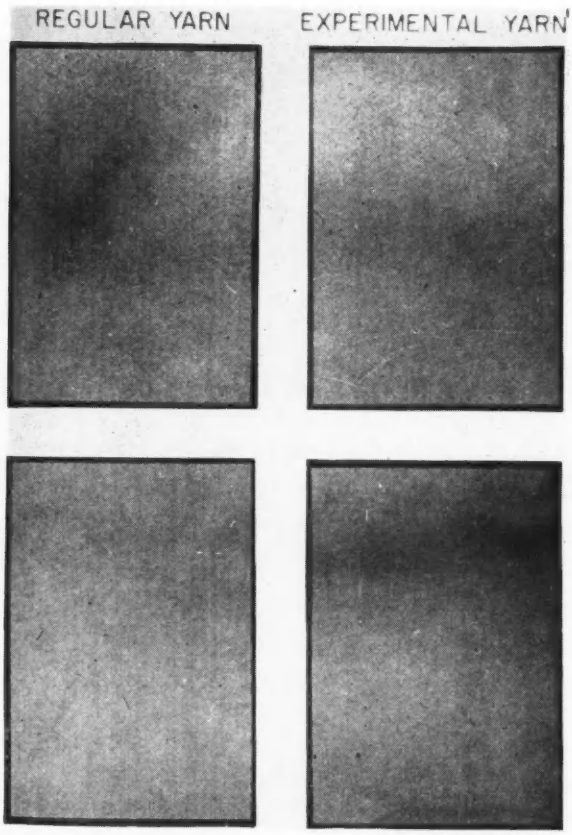


Fig. 8—Closed Jig Acid Color Dyeings of Fabrics Made from Regular and Experimental Yarns

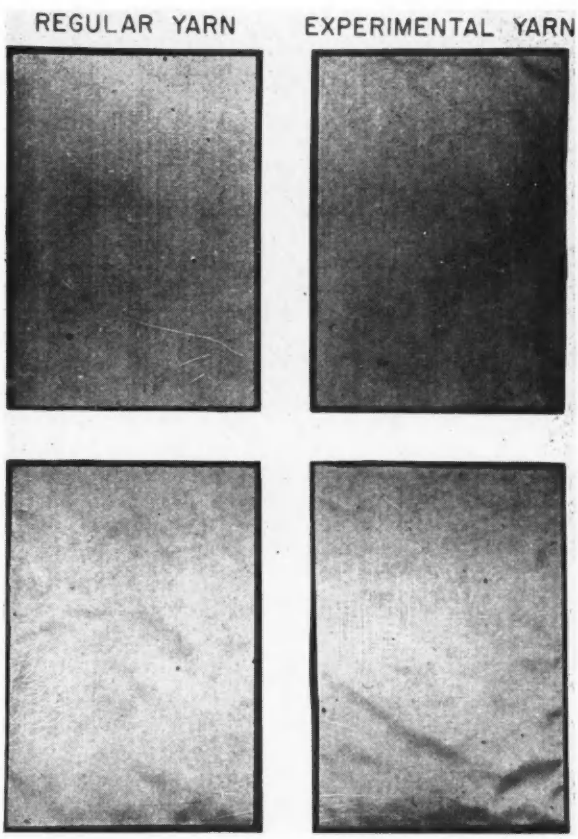


Fig. 9—Closed Jig Acid Color Dyeings of Fabrics Made from Regular and Experimental Yarns

on nylon in that they have either good neutral affinity, or fairly good fastness properties when used with metallic salt assistants.

As a result of our research activity in this field, the Du Pont Company has recently commenced small scale production of several new dyes which in the laboratory appear promising when used on nylon and nylon-wool unions. These dyes will be given mill trials with specific end uses in mind, in order to learn whether they have satisfactory dyeing properties under practical dyeing conditions. These dyes are characterized by having very good neutral affinity, excellent build-up properties, good fastness to both light and washing, and good union-dyeing properties for nylon-wool blends. A fairly complete shade range is now available, as shown in figure 10, and additional work is progressing speedily to fill out the range even more completely.

While we do not claim that these dyes on nylon will have all the good properties that we are looking for, we believe that they may prove to be very valuable because of their better all-round fastness, and also their good union dyeing properties with wool.

Dyeing of Highly Delustered Nylon Fabrics

For some time there has been a marked demand for a highly delustered nylon yarn for two specific uses, namely:

(1) For nurses', waitresses' and dietitians' white uniforms which will be non-transparent and have good draping properties, and

(2) For permanently delustered full-fashioned nylon hose.

To meet these demands, the Nylon Division recently introduced to the trade a 70 denier-34 filament highly delustered yarn for use in broad-woven fabrics and a highly pigmented 20-denier monofilament yarn for hosiery. Naturally, the weaving yarn was on the market for a short time only before enterprising gentlemen commenced asking themselves, "Why can't we use this highly delustered yarn with semi-dull yarns in certain of our styles, and thereby improve the handle and draping characteristics?" And so, a yarn originally intended for use in whites only, now becomes a yarn that will be dyed in certain styles. Your question is, "How do we dye it?"

While our answers at the present time are incomplete in that we cannot suggest formulas for obtaining the optimum light and wash fastness desired, we do know the following facts:

(1) From two to three times as much color is required to reach the same apparent visual strength on this yarn as on a semi-dull yarn of the same denier.

(2) For this reason it is more difficult to obtain heavy shades. Pastel and light shades can be obtained with ease. Shades of medium depth are obtained satisfactorily with acetate dyes but with more difficulty with acid dyes. Very heavy shades are difficult to control to shade. We have yet to see a really good black on this yarn with adequate fastness properties.

(3) Due to the high quantity of pigment in the yarn, the light fastness of dyes thereon is noticeably inferior to that obtained on bright or semi-dull yarns. Also, at the same visual strength, the wet fastness properties are slightly inferior, due to the greater quantity of dye on the fiber.

The Dyeing of Spun Nylon Fabrics

Most of the spun nylon now reaching the market is going into knitted fabrics of one type or another, and consequently is either yarn dyed or garment dyed, as in sweaters or socks. However, a considerable quantity is going into fabrics such as upholstery and garments where piece dyeing is important. Consequently, you will be interested in the dye types and methods used on spun nylon fabrics.

In the manufacture of nylon staple, a blending operation is used which produces a statistical distribution of yarn segments such that good uniformity is obtained. For this reason, acid and direct colors are used much more widely on spun yarns and fabrics than on those produced from continuous filament yarns.

Thomas and Faris (*American Dyestuff Reporter* 37 p. 3—Jan. 12, 1948) have examined the dyeing characteristics of acid and direct colors on spun nylon yarns compared to that on filament yarns. The following items of interest were found.

(1) The rate of dye absorption is increased with the nylon staple yarn.

(2) With "non-penetrating" dyes, the nylon staple has greater receptivity than the continous filament yarn of the same denier per filament. However, "penetrating" dyes showed little variation in receptivity between staple and filament nylon.

(3) The wash fastness of the acetate, acid and direct dyes is inferior on staple yarns to that on filament yarns, but the light fastness is unaffected. However, the wash fastness of the acid and direct colors on nylon staple is considerably superior to that of acetate colors on

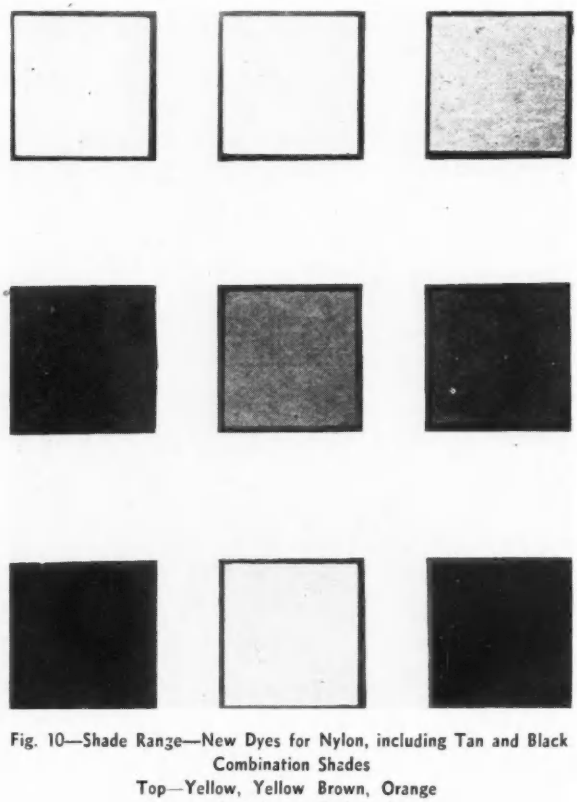


Fig. 10—Shade Range—New Dyes for Nylon, including Tan and Black Combination Shades
Top—Yellow, Yellow Brown, Orange
Center—Dark Brown, Red, Violet
Bottom—Navy Blue, Tan, Black

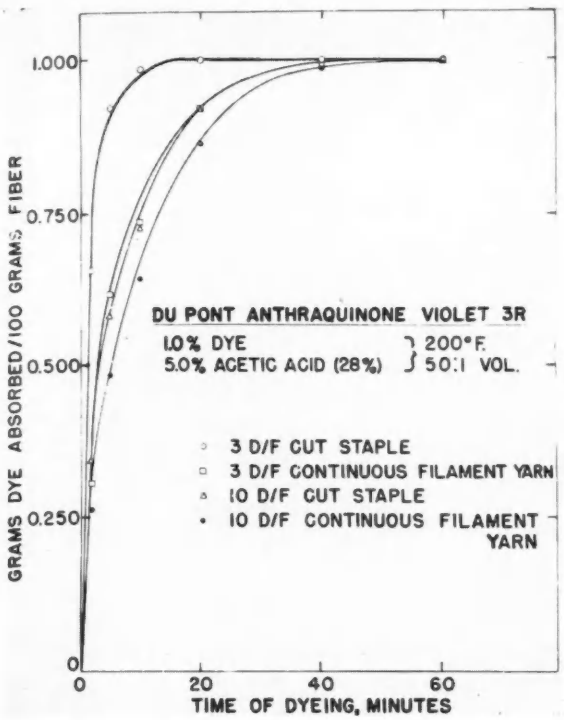


Fig. 11—Rate of Dyeing on Staple and Filament Nylon

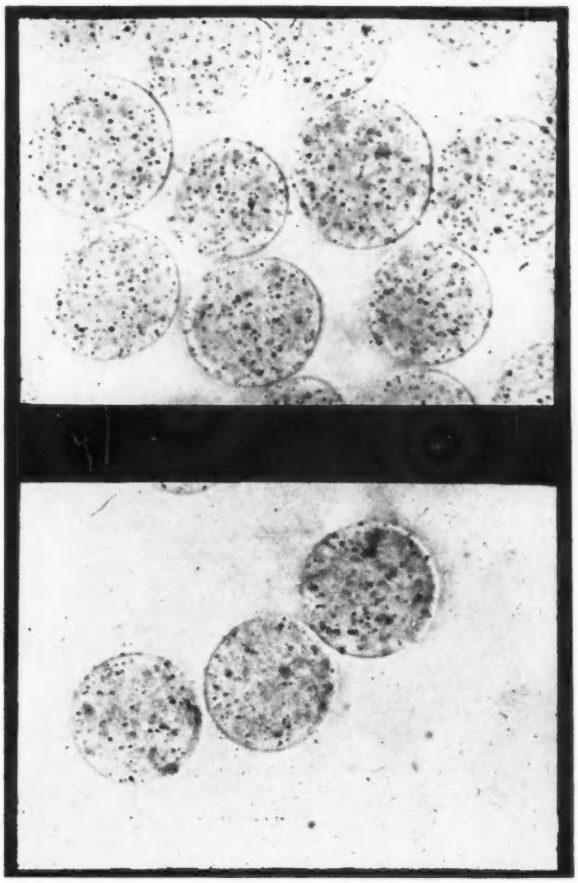


Fig. 12—Penetrating Dye—Du Pont Milling Yellow 5G Conc.
Top—Filament Yarn
Bottom—Staple Yarn

filament yarns.

These above comparisons are illustrated by figures 11 to 13 and tables II and III.

Because of the greater dyeing rate of acid dyes on spun nylon, it has been found advisable, particularly in light shades, to start the dyeing at a low temperature in the presence of a weak alkali, such as ammonium hydroxide. This restrains the dyes from "hopping on" the fiber in an unlevel manner. After raising to temperature, the dye is exhausted from the bath slowly by gradual additions of acetic or formic acids. Not only is better levelness obtained, but also better dye penetration into the yarn, fabric or fiber, resulting in better fastness properties than would be obtained by rapid-dyeing procedures.

Dyes for Nylon Stable to High Temperatures

Dyed nylon fabrics are frequently subjected to various operations in which fastness to temperatures ranging from 212°F. to 450°F. is required. Operations of this nature include pressure-steaming, decating, drying on the tenter frame, curing of "Zelan" and other resins, calendering, embossing and heat-setting. What types of dyes will best withstand the heat of these operations?

Generally speaking, the vats, acids, di-

TABLE II

Relative Wash Fastness of Dispersed Acetate Color Dyeings on 3.0 D/F Filament and Staple Yarns

1.0% Dyeing of:	Number of Times Washed	% Dye Removed on Washing A.A.T.C.C. No. 1 Washings: Filament Yarn	Staple Yarns 5-in.	Staple Yarns 1-½-in.
Acetamine Scarlet B	2	16	24	31
Acetamine Scarlet B	5	22	33	41
Celanthrene Brilliant Blue FFS Conc. 200%	2	27	26	39
Celanthrene Brilliant Blue FFS Conc. 200%	5	40	43	54

TABLE III

Relative Wash Fastness of Acid and Direct Color Dyeings on 3.0 D/F Filament and Staple Yarns

1.0% Dyeing of:	% Dye Removed by Three A.A.T.C.C. No. 3 Wash Tests: Filament Yarn	Staple Yarns 5-in.	Staple Yarns 1-½-in.
Pontacyl Light Yellow GX	50	63	69
Du Pont Milling Yellow 5G Conc.	24	41	44
Chromacyl Orange R	2	29	27
Pontamine Fast Orange 2GL	6	15	9
Pontamine Fast Red FCB Conc. 150%	25	17	12
Du Pont Milling Red SWB Conc. 125%	7	10	19
Chromacyl Bordeaux R	3	11	16
Chromacyl Blue GG Conc. 200%	15	17	19
Du Pont Anthraquinone Green GN	21	28	33

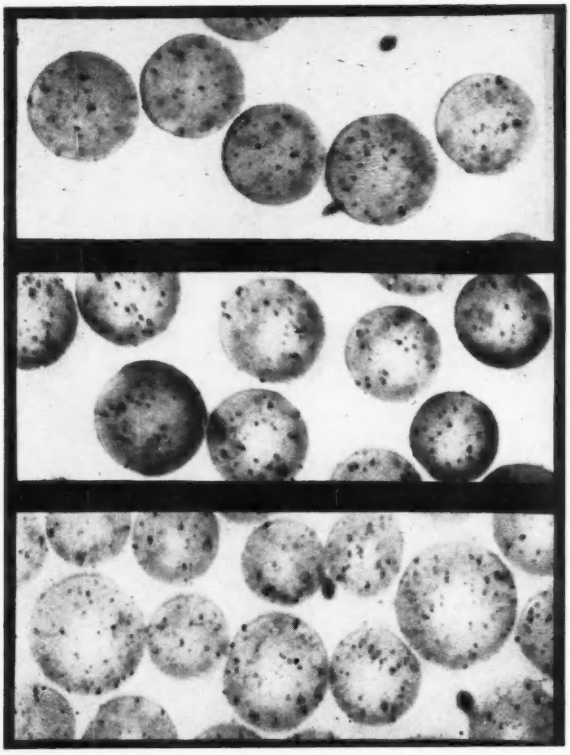


Fig. 13—Non-Penetrating Dye—Du Pont Milling Red SWB Conc. 125%
Top—Cut Staple Yarn
Center—Uncrimped Rope
Bottom—Continuous Filament Yarn

rects and chrome colors are most suitable where heat stability is required. Dyes that are easily reducible, such as the Sulfocyanine Blue type, do not have good heat stability. Naphthol and developed acetate colors are thermally unstable on nylon. Some acetate dyes are satisfactory for short time periods at moderate temperatures, but sublime or are destroyed at higher temperatures.

One curious effect that has been noted with many dyes subjected to heat-setting conditions is that after exposure the wash fastness is somewhat improved, while the light fastness is slightly reduced. Our evaluations indicate that this is caused by migration of dye near the periphery of the fiber into the fiber center.

Dyeing Nylon Unions

Since the dyeing of nylon-wool unions will be covered in another paper, we shall confine our discussion to unions with fibers other than wool.

Nylon-cellulosic fiber unions are of considera le interest for items such as upholstery and slip-cover or seat-cover fabrics. The choice of dye types and dyeing methods to be used is dependent upon several factors. These include the fastness desired, the construction of the fabric, and the equipment available. Where optimum light fastness is desired for a fabric made with nylon in the face, it is our recommendation that the following method be employed.

(1) Starting with a slightly acid bath, dye the nylon portion to shade at 200°F. using fast-to-light acid colors that do not stain the cotton or viscose.

(2) When the nylon portion is on shade, drop the bath temperature to 160°F., neutralize excess acid with soda ash and add 2% soda ash in excess. Then dye the cotton or viscose with dyes that have good affinity for these fibers at an alkaline pH, but which do not stain the nylon.

The following acid dyes with good light fastness are used for dyeing the nylon to leave the cotton white or nearly so:

DuPont Brilliant Paper Yellow Ex. Conc. 125%.
DuPont Milling Yellow 5G
"Chromacyl" Pink BN
DuPont Anthraquinone Violet 3R
DuPont Anthraquinone Blue AB
DuPont Anthraquinone Blue SWF Conc. 150%.
DuPont Anthraquinone Blue SKY
DuPont Neutral Gray L

These direct colors have good affinity for cotton from a weakly alkaline bath at 160°F. and produce little staining on nylon:

"Pontamine" Fast Yellow RL
"Pontamine" Fast Orange ERL
"Pontamine" Fast Pink BL Conc. 125%
"Pontamine" Fast Red 3BL
"Pontamine" Fast Red 7BNL
"Pontamine" Fast Blue SFL Conc. 150%
"Pontamine" Fast Blue 6GL
"Pontamine" Fast Blue 8GL Conc. 175%
"Pontamine" Fast Gray 2GL
"Pontamine" Diazo Black BHSW Conc.

For union fabrics made with a cotton or viscose face with nylon in the back as reinforcing, we recommend that the cellulosic fiber be vat-dyed by the regular procedure, and the nylon be "filled in" subsequently with acetate colors in the soap bath after oxidation, or with acid colors in a fresh acid bath.

Several other methods are available for nylon-cellulosic unions. These include:

(1) Dyeing with union-dyeing vat colors at 200°-205°F. by the pigmentation process. A number of good union dyeing colors are available.

(2) Application of direct and acetate color combinations from neutral soap baths.

(3) Use of direct and acid color combinations from baths treated with assistant salts, such as magnesium sulfate.

(4) Dyeing selected direct colors in the presence of acid salts, such as sodium dihydrogen phosphate.

(5) Use of certain diazotized and developed colors normally employed for cellulosic fibers and acetate rayons.

A few nylon-acetate unions have reached the market. These are best dyed using selected acetate colors, as the fastness requirements are normally not too severe.

Nylon-silk unions are dyed with acetate, direct and acid colors, depending upon the fabric-construction and end use.

Stripping of Dyes and Resins from Nylons

It may become necessary to strip nylon fabrics of dyes or resins due to an original faulty application. How best do we do this?

Our answer is: "We are not aware of any best method." Each job must be taken into the laboratory and treated by various methods to determine the optimum stripping process. However, the following observations are in order.

(1) Acetate colors are best stripped from nylon at the boil by use of a metal-

lic formaldehyde sulfoxylate, such as "Sulfoxite" S, assisted by a weak organic acid.

(2) A combination of reducing and oxidizing agents used consecutively will sometimes strip chrome and metallized dyes.

(3) Some direct, acid and vat colors are best removed by treatment with alkaline sodium hydrosulfite.

(4) Some resins can be overdyed without stripping.

(5) Dilute acetic or formic acid, used at the boil, may strip the resin satisfactorily. Should this not be effective, the next best treatment is the use of a dilute strong acid, such as hydrochloric acid, at room temperature. However, the effect of the treatment on the fabric strength should be determined before this procedure is used in the mill, as strong acids do lower the tenacity of nylon, particularly in the finer denier yarns.

Newer Methods of Dyeing Nylon

For some time our research group has been concentrating its efforts on new methods for dyeing nylon and other synthetics with three primary objects namely:

(1) To obtain better color build-up on the fiber and fabrics.

(2) To improve the level-dyeing properties.

(3) To obtain better fastness properties.

Two methods appear of particular promise at this time. These are:

(1) A process which consists of padding the fibers, yarns or fabrics with color dispersions or solutions, followed by drying partially or completely, and thereafter heating at temperatures from 200°-470°F. with dry heat.

2) Padding the fibers, yarns or fabrics with color pastes or solutions that contain nylon swelling agents, followed by a steaming or dry heat treatment.

While these processes, as evaluated in the laboratory, are potentially of high interest, we have not yet applied them to mill scale trials. Moreover, considerable remains to be learned before all aspects of these problems have been clarified. Nevertheless, where you have a problem for which one of these processes may provide an answer, we will be glad to work in cooperation with you on its solution.

In conclusion, we realize that many nylon dyeing problems still remain unsolved or only partially answered. However, perhaps we do have a solution to your particular problem. We are always eager to be of assistance wherever we may.

ADDENDUM

Best Neutral Dyeing Acid and Direct Colors for Medium and Dark Shades on Nylon

Ratings Based on 1-2 lbs. Dye Concentration on Nylon Filament

NAME OF DYE	Light (Fade-Ometer)	Washing AATCC #2 (5 Times)	Perspiration Acid	Perspiration Alkaline	Dry Cleaning (Stoddard Solvent)	Crocking Dry	Crocking Moist	Fulling AATCC 4½ hrs. at 90°F.
			Shade Change		Dry			
Du Pont Milling Yellow 5G	4	5	5	5	5	5	5	5-4R
Du Pont Neutral Yellow GS	1-2	4W	5	5	5	5	5	5
PONTAMINE Fast Yellow 4GL	5	5-4W	4D	5	5	5	5	—
PONTAMINE Yellow CH	5	5-4W	5	5	5	5	5-4	—
PONTAMINE Fast Orange 2GL	5	4W	5-4W	5-4W	4	5	5-4	—
Du Pont Neutral Brown 2RS	3	5	5-4Y	5-4W	5	5	5	5
Du Pont Neutral Brown BGL	3	5	4YD	5-4R	5	5	5	5
Du Pont Milling Red SWG Conc. 125%	4	5-4W	5-4Y	5-4W	5-4W	5	5	5-4W
Du Pont Milling Red SWB Conc. 125%	4	5-4W	5-4Y	5	5	5	4	5
Du Pont Milling Red 3B Conc.	4	4W	4Y	5-4DW	5	5	4	5
PONTAMINE Scarlet B	4	4W	5-4D	5-4W	4W	5	5-4	—
PONTAMINE Fast Red FCB Conc. 150%	5	3WY	5	4Y	4W	5	4	—
PONTACYL Fast Blue 5R Conc.	4	5	5	5-4W	5-4W	5	5	5
Du Pont Anthraquinone Blue 2GA	4	5-4W	5	5	5	5	5	5-4W
Du Pont Anthraquinone Bue SKY	3	5-4W	5	5	5	5	5	5-4W
Du Pont Anthraquinone Blue SWF Conc. 150%	3	4W	5	5	5	5	5	4W
Du Pont Anthraquinone Green GN	4	5-4W	5	5	5	5	5	5
Du Pont Neutral Gray L Conc.	4	5-4W	5-4R	5-4W	5	5	5	5-4W
PONTACYL Fast Black BBN	4	5-4W	5	5	5	5	5	5
Acetate Colors								
ACETAMINE Yellow N	5	3W	5	4B	5	5	5	-
ACETAMINE Orange 3R Conc.	4	4W	5	4BL	5-4D	5	5-4	-
ACETAMINE Scarlet B	3	3W	5-4Y	5	5-4W	5	5	-
CELANTHRENE Brilliant Red Conc. 200%	4	3W	5	5-4BL	5	5	5	-
CELANTHRENE Violet CB	4	3-2W	5	5	5	5	5	-
CELANTHRENE Brilliant Blue FFS Conc. 200%	4	3W	5	5	5	5	5	-
10 lbs. ACETAMINE Diazo Black 3B	4	5-4W	5	5	5	5	5	-

MEANING OF RATINGS:

LIGHT (Fade-Ometer): The ratings assigned indicate that an appreciable change occurs between the hours of exposure indicated.

	Rating	1	2	3	4	5	6	7	8	
Appreciable change occurs between	Hours	1¼	2½	5	10	20	40	80	160	Hours
		2½	5	10	20	40	80	160	320	

For the remainder of the ratings, the descriptive terms used for these tests indicate:

5 —Negligible or No Effect
5-4—Trace Change
4 —Noticeable Change
3 —Appreciable Change
2 —Considerable Change
1 —Very Much Change

B —Brighter
BL—Bluer
D —Duller
G —Greener
R —Redder
W—Weaker
Y —Yellower

• PATENT DIGEST •

PAUL WENGRAF

Metallization on Nonconductive Material, Fabrics, Paper, Etc. C, 1

U. S. Pat. 2,474,502
(Charles T. Suchy, June 28, 1949)

Reference is made to the abstract of Brit. P. 575,148 (Callender-Suchy). (see REPORTER, 1946, 475). The present specification, bringing some more details is obviously in connection with the aforementioned British patent; it might briefly be discussed here. The inventor indicates that up to now former metallization processes were carried out with the purpose of covering the surface of the cloth with a coherent metallic layer which had to form a substratum for another metallic layer, super-imposed on the first one. It is claimed that the present invention tends to proceed quite inversely by cleaning the surface from adherent metallic substance and rendering it as nonconductive as possible while the metal deposit is anchored in the interior of the fibers and protected by the surface layers. A final treatment, comprising a further electrodeposition of another metal (gold or silver) can be effected by using the first deposit (for instance, a copper layer) as the conductive agent. In the process the goods are first cleaned, degreased (e.g., with trichloroethylene), thoroughly rinsed and dried. The cleaned material is treated by immersion in a catalyzer ($SnCl_2$) and then impregnated with a colloidal silver solution, prepared from silver nitrate and ammonia plus a reducing sugar. Within 20-30 minutes the reaction is complete and metallic particles which adhere to the surface are removed by brushing while the major part of the metallic silver is solidly imbedded in the fibers. In the electrolytic process, which follows low current densities should be applied, particularly at the start. After an initial skin has been deposited, the current can be increased to a voltage from 4-6.

U. S. Patent Office mentions among other references U. S. Pat. 2,303,871, 1942 of Metaplast Corp. This patent describes a conventional metallizing method which consists of a pretreatment with an hydrochloric acid solution of stannous chloride and an aftertreatment with silver nitrate, ammonia and formaldehyde (the latter acting as a reducing agent). Thus, the chemical process is similar but the principle feature of the present method (i.e., imbedding the metal in the inner parts of the fibers) has been changed.

Dyeing Nylon with Insoluble Acetate Dyes—Steam Aftertreatment C, 4, 07

U. S. Pat. 2,474,890
(Celanese Corp. of America, Croft, July 5, 1949)

Nylon and other polyamide fibers may be dyed deeper shades in the normal dyeing time and without employing dyebaths of unusually high concentrations by the process described in this patent. Although the use of insoluble acetate dyes for dyeing nylon was proposed at the start, it is known that the coloration of superpolyamide fibers takes place more slowly than that of acetate of cellulose, so that the dyeing process became too expensive when dark shades had to be produced. It has been observed that deep, and at the same time, washfast dyeings result by proceeding in the usual manner and then subjecting the dyed material to a steaming operation for 3-7 minutes at a temperature of 225-235°F. under a pressure of about 8 lbs. per square inch. The process is not restricted to the proper, dispersible, water insoluble dyestuff types which are quite generally preferred, but it may likewise be carried out with acid wool dyes. Mixtures of dyes are best applied by dyeing first with one of the dyestuffs and topping to the shade desired in a second dyebath. The textiles can be impregnated by padding or spraying in a continuous process (for instance, in a padding mangle) and then introduced without intermediate drying into a steam chamber under such conditions that a minimum loss on pressure occurs. According to an example, a nylon fabric was pad dyed a red shade in a 1% suspension of 1-hydroxy-4-amino anthraquinone and steamed at 230°F. for five minutes under a pressure of 6 lbs. per square inch. The dyed material was washed for 10 min. in a 0.2% soap solution at 50°C. It proved to be of superior fastness to washing compared with a non-steam aftertreated fabric dyed under the same conditions.

References cited by the Patent Office among others:

U. S. Pat. 2,080,254, 1947 (Celanese) suggests applying dyes of little affinity to acetate of cellulose (for instance, indigo or anthraquinone vat dyes) and promoting penetration by subsequent heating.

U. S. Pat. 2,260,367, 1941 (Mathieson Alkali Works) bleaching nylon with chlorites is accelerated by a treatment at higher temperatures.

U. S. Pat. 2,387,200, 1945 (Uxbridge Worsted Co.) describes a wool cloth dyeing process with Pontacyl or Calcomine dyes at 240-290°F. under a pressure of 25 lbs. per square inch.

Other reference: while the idea to increase the affinity of insoluble acetate dyes by a subsequent steaming process is apparently unknown, U. S. Pat. 2,347,143 (Courtaulds-Wilcock) suggested the aftertreatment of this fiber under pressure at temperatures over 100°C. whereby the affinity to acid dyes is said to be improved.

Pigment Printing—Condensates of Substituted Guanidines with Aldehydes D, 2, 07

U. S. Pat. 2,474,909
(Celanese Corp. of America, Olpin-Law-Gibson, July 5, 1949)

This specification reviews, briefly, standard methods used for fixing pigments. The oldest procedure consisted of applying albumen which hardens in a steaming operation which follows. The drawback in this method is in undue stiffening of the printed fabrics. The albumen process has now almost completely been abandoned and replaced by the use of resin precondensates which, however, generally require insolubilization temperatures running so high as to involve damage of the printed textiles. Most of the temperatures necessary for complete curing are not available in normal textile mill equipment. The invention suggests the use of condensates of aldehydes, preferably formaldehyde, with substituted biguanides as fixing resins. Substitution products of biguanides (for instance, alkyl- or aralkyl-biguanides) are obtained according to standard methods by reacting dicyandiamide on the corresponding hydrochlorides of alkyl- or aralkyl amines or polyamines. The simplest case is the reaction's product of dicyandiamide with ethylamine hydrochloride, giving a monobiguanide, or an analogous product prepared from an aryl- or aralkyl-amine such as aniline or benzylamine. In carrying out this condensation at 150-200°C. the reaction's product undergoes further inner condensation with formation of polyguanides containing the radicle:

-NH-C(NH)-CN-C(NH)-NH-C(NH)-

These complex compounds are then converted into water-soluble condensates by reacting them with aqueous formalde-

(Continued on Page 765)

Proceedings of the
American Association of Textile Chemists and Colorists
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October 17, 1949

160th GENERAL RESEARCH COMMITTEE MEETING

THE 160th meeting of the General Research Committee was held at the Hotel Warwick in New York, Friday, September 9, 1949.

In the absence of Chairman J. Robert Bonnar, away on Association business, W. D. Appel opened the meeting at 2 p.m. and turned it over to Dr. H. W. Stiegler who handled the details from then on.

Activities at Lowell

Dr. Stiegler, in reporting on the activities at Lowell, referred to the work done for the Flammability Committee. More refinements have been made in the tester and more data gathered on the complicated problem of flash burning, especially of chenilles and tufted materials. It is expected that as a result of this work the Flammability Committee will later be able to report on improvements in the present A.A.T.C.C. test instrument. C. W. Dorn referred to the school activity on the subject of flammability of fabrics as being of particular significance. Dr. Stiegler stated that his group at Lowell has been doing further work for the Water Repellency Committee in connection with nozzles, the blotting paper and the measurement of water repellency of wool fabrics. Cooperation was also continuing on this point with the National Association of Wool Manufacturers. While a great deal of work is in process at Lowell in connection with wash fastness, details were postponed for discussion at the time of the Wash Fastness Committee report.

Water Repellency

Dr. Stiegler then called upon G. A. Slowinske, Chairman of the Water Repellency Committee, who stated that at the meeting of his committee the day before there were twelve in attendance. Discussion of the nozzle of the rain tester reached the conclusion that MICO has now accurately standardized the actual size of the holes in the nozzle at .039 ± .0005 inches. The Committee also considered the matter of water delivery data and has come to the conclusion that a little further work will permit the preparation of tables of water delivery at different heads. It has asked Dr. Stiegler at Lowell to determine some of these data in order that a conclusion can be arrived at on tolerance. This will presumably be done by testing fabrics with varying water deliveries working against water penetration. This should give some idea of tolerance in connection with this particular factor. Some data also was requested on the comparison of the ITT nozzle against our present standard nozzle on one or two fabrics. It is believed that the somewhat more precise nozzles developed by ITT may not be required for all tests but will prove satisfactory as alternative equipment. Mr. Slowinske then advised that the Standard Paper Manufacturing Company had made a run of one ton of blotters specially prepared for use in rain testers and have announced their availability widely. Tests run on this first lot of specially made blotters will govern the preparation of subsequent lots. The Water Repellency Committee recommends this same blotter for use in impact penetration and in immersion absorption tests. The Committee then considered the criticism which had been received on the cost of the rain tester equipment, which at present is $260. They have concluded that a piece of equipment may be assembled from commonly used laboratory material which will give the same results as the MICO tester but may not be quite as convenient in use. Mr. Slowinske then referred to the fact that commercial standards for water repellency are being proposed but these do not come from his committee. The work of his committee is directed toward the development of an instrument rather than the ultimate specification which might be set up in various industries. The committee, however, is cooperating with advice in any uses of the instrument so that if it is decided to set up certain requirements it will be known that the instrument is sufficiently applicable to achieve the desired purpose. For example, at the present time in the absence of more specific data the committee is suggesting that tests to be made use a minimum of three samples cut diagonally across the fabric so that different warp and filling yarns will be involved in each sample, that the outside samples be taken not less than one-tenth the width of the fabric from the selvage and that the water repellency results of the three samples be averaged. While a statistical approach involving many different fabrics may require some other decision as to the number of samples, the suggestion should serve to get started on the accumulation of data. The committee will also consider the matter of water repellency on wool including the effect of finishing processes. It is possible that the spray tester is too critical for this particular problem.

Fastness to Light

W. A. Holst reported for the Committee on Fastness to Light. Over 500

sets of Calibration Paper 1554 booklets have been sent out by the National Bureau of Standards. On the basis of returned exposed papers the Bureau finds that the average machine is slightly slower than the NBS unit and some lamps show large deviations from the average performance. The papers are definitely useful for the purpose but they are not ideal. For one thing they are not suitable for use in standardizing sunlight exposures but they were not, of course, developed for that purpose. However, papers utilizing new dyes are being produced experimentally in order to see whether more satisfactory results generally can be secured. The Committee heard reports on the progress of the General Electric Totalizing unit and the many tests now under way by Atlas Electric Devices. No definite findings as to the suitability of the device can be reported and much careful testing and evaluation is planned. The Committee also heard reports on the spectrophotometric evaluation of the fading characteristics of the German, British and American wool light fastness standards. These evaluations clearly demonstrated the superiority of the A.A.T.C.C. standards over the two European standards in uniformity of gradation of fastness within the indicated range of usefulness of the respective dyeings which confirm the results of previous visual examination.

Evaluation of the Effectiveness of Enzymes for Desizing

In the absence of Dr. H. W. Waddle, H. F. Lawton reported that this newly appointed committee had met to organize. They recognize their job to be to develop test methods. It is evident that there are few literature references to work on, and that those with which the Committee is already familiar are not precise. The Committee is making a literature search and later the individual efforts will be correlated and circulated among the members. The Committee will then determine on its further program keeping in mind the significance of the different methods presently used in desizing.

Wash Fastness

In the absence of C. A. Seibert, Dr. Stiegler referred to this committee's report. Further work at Lowell confirms previous reports that the newly developed test produces results comparable with the average of five commercial or home launderings. Some equipment from Atlas Electric Devices Company has been ordered for interlaboratory tests of the new accessories for the Launder-Ometer. Further planning on the interlaboratory tests was also discussed.

Abrasion

Dr. Stiegler then referred to the work at Lowell investigating abrasion which has been demonstrated to be an important factor in commercial and home laundering. The importance of this factor has led to some further work on the high speed abrasion tester which is continually being improved since it was last exhibited to the General Committee. It is expected that the latest model (now named the Accelerotor) will be shown at the October General meeting. Dr. Stiegler advised that in four minutes abrasion equivalent to that involved in thirty commercial launderings is indicated by the use of this machine, which turns up to the speed of 15,000 r.p.m. There was considerable discussion while the machine was being shown.

Detergency Comparator

Dr. Stiegler stated that the Detergency Comparator will shortly be announced in the *American Dyestuff Reporter*. It is expected that the supplier will quote prices soon. Because W. von Bergen has had one of these instruments, he was requested to make some comments to the Committee covering his experience with it. Mr. Von Bergen stated that in essence this comparator is a miniature Dolly washer from the point of view of a plant man. He has found, that on a small scale, formula ingredients such as detergents and buffers can be determined on this small instrument and carried into practical work on larger equipment very faithfully. As may be expected, temperature is very important. For example, he stated that a drop in temperature from 100° to 75° will lower the effect 50%, even though all other factors are unchanged. He made the general statement that he finds the machine very useful to check mill operations with respect to detergents, builders and buffers. It was also stated that the machine has recently been somewhat improved mechanically over the model Mr. von Bergen had.

Miscellaneous Business

Under new business Mr. Cady stated that in the meeting of the *Colour Index* Committee two items were brought up which are of significance to the General Research Committee: The Standard A.A.T.C.C. method of fulling has been criticized because the specified ¾ inch balls break too many jars. On the basis of reported experience the *Colour Index* Fastness Committee is planning to substitute ¼ inch balls for the ¾ inch balls using the same weight but increasing the number to about 54 in place of the four ¾ inch balls. It is felt that the A.A.T.C.C. Fulling Committee should consider this matter in connection with the Standard Test. Dr. Stiegler advised that this will be brought to the attention of the Reference Committee, and that this matter may be checked by the Lowell personnel if O.K.'d by the Executive Committee.

Mr. Cady also stated that the questionnaires which may be distributed shortly will request information as to whether dyes are sensitive to metal. It appears that there is no Standard A.A.T.C.C. test covering this point and that work done in the trade has not been standardized. It was suggested that perhaps a small sub-committee, conveniently located geographically to permit close cooperation, could quickly bring together data for the most desirable uniform test condition. This will be referred to Mr. Bonnar upon his return.

There being no further business the meeting adjourned at 3:30 p.m.

Those present were:

H. W. Stiegler, *Research Director.*
G. H. Schuler, *Secretary.*

W. D. Appel
E. C. Atwell
K. H. Barnard
W. H. Cady
H. C. Chapin
H. D. Clayton
J. N. Dalton
C. W. Dorn
C. Z. Draves
A. W. Etchells
H. E. Hager
A. E. Hirst
W. A. Holst
R. W. Jacoby
N. A. Johnson
A. J. Kellner
H. F. Lawton
L. S. Little
J. E. Lynn
W. R. Moorhouse
J. E. Norton
A. D. Nute
W. M. Scott
G. A. Slowinske
E I. Stearns
J. A. Stevenson
F. Stutz
C. A. Sylvester
H. H. Taylor
W. von Bergen
J. F. Warner
H. E. Wilde
P. J. Wood
H. L. Young

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1950 Schedule of New York Section Meetings

THE following is the schedule of meetings for the New York Section for the first half of 1950:

January 13, Hotel New Yorker, New York.

March 3, Hotel Statler, New York.

April 7, Kohler's Swiss Chalet, Rochelle Park, N. J.

May 5, Kohler's Swiss Chalet, Rochelle Park, N. J.

June 16, Outing.

South Central Section Summer Outing

THE South Central Section held its annual summer outing September 9th and 10th. Under the superb leadership of the following, it was the best outing yet: E. V. Helms, general chairman, Mrs. G. R. Bellamy, chairman, ladies entertainment, Jack Anderson, finance chairman, Sam MacKenzie, entertainment committee, and Hal Asbury, golf tournament chairman.

The banquet was held at the Chattanooga Golf and Country Club with our National President, Henry F. Herrmann bringing the principal address.

Mr. Herrmann said that the A.A.T.C.C. is making an important contribution to the textile industry through its work in the fields of research, standardization and education. Mr. Herrmann explained the purpose, work and objective of the national association, which, he said, now has a membership of 6,000 individuals and 300 companies.

"One of our important contributions is being made in our work of developing proper standards for textile products", Mr. Herrmann said, "Such a program would be beyond the means of the individual concern.

"Our program aims at developing standards that will be accepted by the textile industry. The Government's Bureau of Standards is not equipped for such a program and we believe that the standards should come from the industry itself."

J. R. Bonnar gave a most interesting talk on research development.

A cocktail party was held at the Patten Hotel Friday, September the 9th at 7 P. M. Another cocktail party was held at the country club Saturday night preceding the banquet. During the banquet the group was entertained by an accordionist. Following the banquet a dance was held.

Some twelve valuable prizes were presented to the ladies for bridge and other activities, six prizes to horse shoe winners, fourteen prizes for golf, and many other valuable prizes at the banquet.

The following won golf prizes in the mill men division: R. V. Martin, Frank Cater, R. C. Anderson, Jack Anderson, Bill Millor, Bill Agnew, W. T. Evans, and W. T. Sledge. Winners in the suppliers division were: W. R. Sargent, John Sweitzer, Dan Rion, Vaden Shadden, E. V. Helms, Henry Gaede, A. T. McDowell, and George Linberg.

Photo, A. J. Kelly, Burkart-Schier

Jack Anderson, Peerless Woolen Mills, Henry F. Herrmann, General Dyestuff Corp., J. Robert Bonnar, General Dyestuff Corp., Joseph Lange, Geigy Company, Inc.

Photo, A. J. Kelly, Burkart-Schier

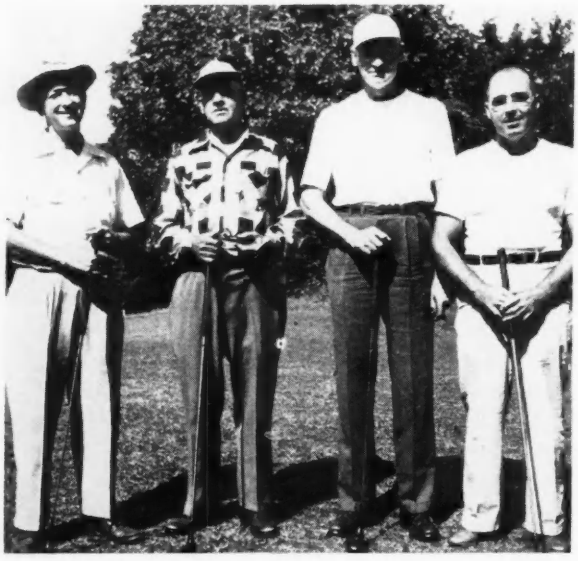
George McCarty, Burkart-Schier Chemical Co., A. T. McDowell, Solvay Sales Division.

Photo, A. J. Kelly, Burkart-Schier

Bill Haines, Hercules Powder Co., Harry White, Se-Ling Hosiery, Inc.

There was a total of 170 registered with the following visitors: *from Piedmont Section,* F. O. Tilson, Mr. and Mrs. W. R. Sargent, Ben Borrmann, Jack Reese, I. J. Royce, A. H. Gaede, Fowler Jackson; *from Southeastern Section,* C. E. Nixon, Dan Rion, Gillespie Smith, Mr. and Mrs. Henry Dozier, Clifford Smith, J. E. Ford, C. F. Moss, A. K. Haynes, W. A. Haines, W. B. Griffin, R. W. Ang-

stadt, J. B. Tatum, R. N. Foster, F. J. Potter, David Merriwether, R. E. Summer; *from New York Section,* Cornel W. Peters, Mr. Bonnar, Mr. Herrmann, J. S. Lange; *from Philadelphia Section,* Howard Virkler, Tom Lindsay, Wm. Schoellhorn; *from New England Section,* Geo. Linberg; *from Midwest Section,* R. C. Anderson and Mr. and Mrs. Frank Myers.



Photo, A. J. Kelly, Burkart-Schier

Gillespie Smith, Calco Chemical Division, George Linberg, Monsanto Chemical Co., Bob Anderson, Cleveland Worsted Mills Co., Kemp Haynes, Rohm & Haas Co.

Photo, A. J. Kelly, Burkart-Schier

Frank Cater, Ray-Ser Dyeing Company, Glenn Bellamy, Ciba Company, Inc., Bob Morris, Kingsboro Silk Mills.

Photo. A. J. Kelly, Burkart Schier

Bill Agnew, Dixie Mercerizing Company, Henry Gaede, Laurel Soap Manufacturing Company, Everett Burgner, Devenport Hosiery Mills, Bill Evans, Harriman Hosiery Mills.

Photo, A. J. Kelly, Burkart-Schier

Dan Rion, Nopco Chemical Company, Inc., Tom Conway, Standard-Coosa-Thatcher Co., Charles Spratt, National Aniline Division, W. T. Sledge, Miller Smith Hosiery Mills.

South Central Outing—

ONE HUNDRED AND SIXTY-EIGHTH COUNCIL MEETING

THE Council held its 168th meeting in the Hotel Warwick, New York, N. Y., on Friday morning, September 9, 1949. Present were President Henry F. Herrmann, presiding; John N. Dalton and C. Norris Rabold, Vice Presidents; William R. Moorhouse, Treasurer; William D. Appel, William H. Cady, Carl Z. Draves and P. J. Wood, Past Presidents; J. Robert Bonnar, Chairman of the Research Committee; Howard L. Jenkins and Albert E. Sampson representing Northern New England; Raymond W. Jacoby and Robert W. Joerger representing Rhode Island; Charles W. Dorn, Herman E. Hager and William A. Holst, Jr. representing New York; James Dixon, Arthur W. Etchells, Walter F. Fancourt 3rd and Morris H. Klein representing Philadelphia; Raphael E. Rupp representing Piedmont; Walter M. Scott representing Southeast; Harold H. Taylor representing Western New England; Albert E. Herrmann Jr. representing Hudson-Mohawk; Kenneth H. Barnard of the Convention Committee; Patrick J. Kennedy of the Intersectional Contest Committee; Leonard S. Little of the Corporate Membership Committee; Paul J. Luck of the Publicity Committee; J. Edward Lynn, Chairman of the Western New England Section; Harold W. Stiegler, Research Director; Percival Theel of the Publications Committee; and Harold C. Chapin, Secretary.

The Secretary's report of the 167th Council meeting, and financial report of Sept. 2, were accepted.

The legality of placing upon the October ballot the proposal to amend the Constitution made at the June Council meeting, was questioned on the ground that the Council had taken no action in that meeting. The proposal was subsequently eliminated by withdrawal of more than two-thirds of the signatures of sponsors by the signers, reducing the number materially below the twenty-five required.

Professor Theel reported publication of the first monograph, the new, enlarged and wholly rewritten "Analytical Methods for a Textile Laboratory." Mr. Jacoby said that the second monograph, on Vat Dyes, had reached the stage of a first draft, already circulated among the editors and returned with comments. On report from the Appropriations Committee that funds were available, the appointment of a part-time editor for the Proceedings, proposed at the June Council meeting, was approved, and the Publications Committee authorized to make the appointment.

To finance publication of the new *Colour Index*, contingent upon the Council's approval of a contract with the Society of Dyers and Colourists, the Treasurer was authorized to borrow from General and Research Funds. Mr. Cady discussed the proposed contract.

Reporting on the Atlantic City convention, Mr. Fancourt stated that arrangements had been made for seventy booths in the exhibit, including those of Army and Navy. Although bedrooms in the Chalfonte-Haddon Hall would be more than filled, there would be accommodations for all in near-by hotels. Mr. Kennedy said that seven papers for the Intersectional Contest were assured. Mr. Etchells reported receiving for the general program more papers than could be accepted. He recommended a new Chairman of the Technical Program Committee each year, chosen from the Section running the convention.

Mr. Bonnar reported for the Research Committee, particularly on relations with the American Standards Association and international groups, among them the International Silk Association meeting in June in 1950. Our research exhibits in New York in June, in connection with the Textile Wet Processing Exhibition and the convention of the National Retail Dry Goods Association were discussed by Mr. Bonnar and Mr. Dorn. Extension of Mr. Bonnar's term as Chairman of the Executive Committee on Research through the year 1950 had been approved by letter ballot of the Council.

The following was voted:

"To Charles Alfred Jones, Professor of Textiles, Georgia Institute of Technology, Atlanta, Georgia, the Council of the American Association of Textile Chemists and Colorists, meeting in New York City on September 9th, 1949, extends its greetings and its appreciation of his many years devotion to the highest aims of our organization. Among the founders of our Southeastern Section, he has served as Secretary, Chairman and Councilor. To him the Student Chapter of the Georgia Institute of Technology has looked for guidance. May his influence long be felt in the affairs of our Association."

Arrangements were approved for Council and Research Committee meetings in Montreal on June 9 and 10, 1950. Acceptance was voted of an invitation from the Canadian Association of Textile Colourists and Chemists, for representation at a seminar in September, 1950.

For the Committee on Membership and Local Sections, Mr. Dalton indorsed a petition for organization of a Pacific Northwest Section, which was approved. Each of the following was elected to the class of membership specified, as of thirty days from publication of application, provided no objection be received meanwhile by the Secretary.

SECRETARY'S FINANCIAL REPORT, SEPTEMBER 2, 1949

	Applications	*Dues, Regular & Reinstate*	*Dues, Corporate & Sustaining*	*Miscellaneous*	*Totals*
Received and transmitted to Treasurer,					
August 1, 1948, to May 31, 1949..	$5.001.00	$35,765.00	$44,787.50	$19,975.32	$105.528.82
May 31 to July 31, 1949.....	465.00	115.50	220.00	4,814.59*	5,615.09
Total in fiscal year ended July 31, 1949	5,466.00	35,880.50	45,007.50	24,789.91	111,143.91
August 1 to September 2, 1949....	281.00	44.00	0.00	736.40**	1,061.40
Leaving deposited by Treasurer with Secretary					5,787.75

Miscellaneous items	*	**
Dividends	$410.90	$39.80
Reporters & reprints	292.24	5.30
Year books	335.05	208.50
Crockmeters	373.00	92.00
Crock cloth	463.50	120.75
Moth cloth	110.75	25.00
Water test apparatus	89.50	56.75
Dyed standards	40.00	16.00
Knitted tubing	68.95	
Gas Fading Units	2.00	
Buttons	2.00	2.00
Color transfer charts	82.00	24.50
Colour Index	240.00	60.00
Analytical Methods, (new)		86.00
Research equipment resold	175.00	
Launderometer royalties	130.00	
Contribution to Flammability Project	2,000.00	
	4,814.89	736.60
Less bank charges	.30	.20
	$4,814.59	$736.40

Senior

P. M. Barnett
E. Bergesen
B. Borus
B. H. Bottomley
J. A. Brown
J. J. Casserly
M. E. Chiddix
L. Ciko
D. J. Coffey
G. Cohn
K. R. Crowley
J. W. Cutler
J. L. Dabbs
J. P. Davagne
A. R. Davidson
A. N. Doubleday
W. H. Dribben
G. W. Dunham
E. A. Egerer
R. P. Farren
G. L. Gilbert
A. Hirtenstein
F. Jackson
C. C. Johnson, Jr.
J. Katz
R. L. Katz
E. J. Kayser
A. F. Klein
J. B. Knipe, Jr.
J. P. Kramer
G. Kuhn
H. A. Lovejoy
S. H. Markowitz
G. McMeekin
R. E. Meiling
J. V. Mosley
R. R. Mulligan
C. E. Nixon
W. Pheil
R. L. Poplin
J. J. Press
M. Previti
M. J. Quigley
R. K. Remer
D. W. Reisigl
F. Rhodes
J. F. Rogers
C. W. Saalfrank
A. G. Schaeffer
G. R. Seidel
S. R. Sheeran
R. M. Simington
T. A. Strachan
E. R. Swing
D. V. Thompson
S. T. Tracy
H. A. Tuthill
B. M. Ubbesen
W. E. Valk
J. O. Vernon, Jr.
A. H. Weikel
C. L. Westmoreland
L. D. Wornom
H. Zucchino

Junior

J. P. Acquaviva
L. Beck
J. H. Campbell
W. C. Comer
E. D. Fenton
E. H. Grosse
C. M. Horne
M. Lourdes
W. B. Mason
W. H. Mohn
B. F. Mullen, Jr.
R. N. Palen
J. M. Reynolds
R. W. Roff
A. K. Scribner, Jr.
T. F. Smyth
M. Sparks, Jr.
C. A. Whitehead

Associate

F. Bank
G. Botero
J. D. Charlton
H. L. Drew
M. Gordon
J. J. Harris
L. R. Henry
B. H. Herzfeld
H. G. Lind
L. J. Manara, Jr.
P. E. Mezick
J. R. Owens, Jr.
J. P. Patton
F. F. Pollak
F. B. Sibley
R. N. Smith
H. A. Stauderman
J. F. Taylor

Student

R. D. Freeman
W. Geller
N. Korostoff
H. J. Meyer
L. B. Temkin
C. C. Little, Jr.
J. H. Hennessey, Jr.
W. J. Broderick
J. A. Ingle
B. D. Finch, Jr.
A. B. Theakston

Transferred from other classifications to Senior Membership were:

W. Adler
E. M. Buras, Jr.
T. P. Caldwell
P. A. Celella
J. P. Clancy
F. C. Donofrio
J. M. Hesley
T. D. Johnson, Jr.
W. R. Melford
F. W. Smith, Jr.
L. I. Mowrey
R. O. Steele
M. R. Sullivan
R. M. True
D. M. Zuckerman

Respectfully submitted,
H. C. CHAPIN, *Secretary.*

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Membership Applications

ASSOCIATE

Frederick F. Pollak—Consulting Chemist, New York, N. Y.

Fannie B. Sibley—Librarian, The Wool Bureau, Inc., New York 19, N. Y.

Robert N. Smith—Sales Correspondent & Salesman, Smith, Drum & Co., Philadelphia, Pa.

Herbert A. Stauderman—Advertising Repres., Howes Publishing Co., New York, N. Y.

John F. Taylor—Plant Mgr., Perma Dry Co., Inc., New York, N. Y.

STUDENT

Robert D. Freeman—North Carolina State College. Sponsor: H. A. Rutherford.

Walter Geller—North Carolina State College. Sponsor: H. A. Rutherford.

Norman Korostoff—North Carolina State College. Sponsor: H. A. Rutherford.

Herbert J. Meyer—North Carolina State College. Sponsor: H. A. Rutherford.

Leonard B. Temkin—North Carolina State College. Sponsor: H. A. Rutherford.

Clarence O. Little, Jr.—Georgia Inst. of Technology. Sponsor: C. A. Jones.

John H. Hennessey, Jr.—Philadelphia Textile Inst., Philadelphia, Pa. Sponsor: P. Theel.

William J. Broderick—Rhode Island School of Design. Sponsor: H. B. Sturtevant.

Jack A. Ingle—Clemson College. Sponsor: Joseph Lindsay, Jr.

Burton D. Finch, Jr.—Georgia Inst. of Technology. Sponsor: C. A. Jones.

Arthur B. Theakston—St. Hyacinthe Textile School. Sponsor: G. R. Boule.

APPLICATIONS FOR TRANSFER TO SENIOR MEMBERSHIP

Wallace Adler, Edmund M. Buras, Jr., Thomas P. Caldwell, Paul A. Celella, Joseph P. Clancy, Frank C. Donofrio, John M. Hesley, Thomas D. Johnson, Jr., Walter R. Melford, Frank W. Smith, Jr., Lawrence I. Mowrey, Richard O. Steele, Mary R. Sullivan, Robert M. True, Don M. Zuckerman.

CALENDAR

RHODE ISLAND SECTION
Dinner meeting: November 18.

PHILADELPHIA SECTION
Meeting: November 11 (Kugler's, Philadelphia).

PIEDMONT SECTION
Meeting: November 5 (Charlotte Hotel, Charlotte, N. C.

HUDSON-MOHAWK SECTION
Meeting: November 18.

NEW YORK SECTION
Meetings: November 18 (Swiss Chalet, Rochelle Park, N. J.) Jan. 13 (Hotel New Yorker, New York), Mar. 3 (Hotel Statler, New York), April 7, May 5 (Kohler's Swiss Chalet, Rochelle Park, N. J.), June 16—Outing.

NORTHERN NEW ENGLAND SECTION
Meetings: November 4 (Lowell Textile Institute), December 2 (Boston).

WESTERN NEW ENGLAND SECTION
Meeting: November 4 (Rapp's Restaurant, Shelton, Conn.), December 9 (Danbury, Conn.)

SOUTHEASTERN SECTION
Meeting: December 3 (At French Textile School, Georgia Institute of Technology).

SOUTH CENTRAL SECTION
Meeting: November 19, (Hotel Patten, Chattanooga, Tenn.).

COUNCIL
Meeting: December 9 (New Yorker, New York).

RESEARCH COMMITTEE
Meeting: Dec. 9.

NATIONAL CONVENTIONS
1950: September 28 to 30, Portsmouth, N. H.
1951: October 18 to 20, Statler, New York.
1952: Boston.

NNE Section to Meet Nov. 4

THE next meeting of the Northern New England Section will be held on November 4th, at Lowell Textile Institute, Lowell, Massachusetts.

The program will consist of: Round Table discussion on moisture determination at 4:00 P.M. led by John M. Gould, Plant Chemist, Barre Wool Combing Co. Ltd., South Barre, Massachusetts; Dinner at 6:15. (Reservations will be handled by Edward B. Bell, Textile Aniline & Chemical Co., 49 Blanchard Street, Lawrence, Massachusetts); and a paper at 8:00 on "Measurement of Strength of Dyes" by Dr. Edwin I. Stearns, Ass't. Director, Physics Research, Calco Chemical Division, American Cyanamid Company, Bound Brook, New Jersey.

Robert Mishell, Dye Masters, Inglewood, California, shown with the Perpetual Trophy donated by Sandoz which he won at the Outing of the Pacific Southwest Section.

Outing, Pacific Southwest Section

THE First Annual Outing and Golf Tournament of the Pacific Southwest Section was held on July 29th at the Oakmont Country Club, Glendale, California.

The features of the outing were the golf tournament and putting contest. Russell B. Coleman, Section Vice-Chairman, presided at the dinner in the evening, which was attended by 50 members and guests. Charles H. Dunker, Outing Chairman, awarded the prizes to the members and guests for their participation in the events of the day. Mr. Dunker received the praises of all members for an excellent job in making the outing a success.

The Sandoz Chemical Works through the courtesy of Dave F. Driscoll, West Coast Manager, presented the section with a beautiful gold trophy. This perpetual trophy will be awarded annually for 1st Low Gross in the Gold Tournament.

Golf Winners

Booby Prize—Leon Olsen.

Members: 1st Low Gross—Robert Mishell.

2nd Low Gross—Frank Morton.

Members: 1st Low Net—Joseph De La Barre.

2nd Low Net—Norman Koehler.

Guests: Low Gross—Jimmie Sanderford.

Low Net—Arnold Styles.

Putting Contest: 1st Low—Dave Driscoll.

2nd Low—John Smith.

Respectfully Submitted

F. L. WILHELM, *Secretary.*

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Meeting, New York Section

THE first meeting of the New York Section for the 1949-50 season was held at Kohler's Swiss Chalet, Rochelle Park, New Jersey on Friday evening, September 23rd. An informal dinner preceded the meeting.

The Chairman, Charles W. Dorn, opened the meeting by introducing the officers and committee chairmen of the Section. He announced that meetings for the balance of the season would be held as follows:

November 18, 1949—Kohler's Swiss Chalet.

January 13, 1950—Hotel New Yorker.

March 3, 1950—Statler Hotel.

April 7, 1950—Kohler's Swiss Chalet.

May 5, 1950—Kohler's Swiss Chalet.

June 16, 1950—Outing.

Mr. Dorn also announced that Robert W. Brewer would again be Chairman of the Outing Committee for this season's outing. He stated, with regard to the National Convention in Atlantic City, that hotel accommodations would be available for all persons desiring them.

The speaker of the evening was Dr. Reginald C. Wakeman of Onyx Oil and Chemical Company who discussed "The Chemistry of Commercial Plastics". Dr. Wakeman illustrated his talk with an interesting display of samples.

The attendance was approximately 150.

Respectfully submitted,

NORMAN A. JOHNSON, *Secretary.*

EMPLOYMENT REGISTER

This column is open for four insertions per year, per member, without charge. Blanks can be obtained from, and filed with, the Secretary of the Association. Lowell Textile Institute, Lowell, Mass. It is understood that these will be open to inspection by prospective employers, who can obtain further information from the Secretary.

49-23

Education: Textile High School, with college courses in chemistry.

Experience: Laboratory and plant technician.

Age 23; unmarried; references; vicinity of New York City preferred.

9-19, 10-3, 10-17, 10-31

49-24

Education: PhD, Switzerland.

Experience: Roller and screen printing of all fibers; finishing, including resins and anticrease treatment; superintendent, research chemist and chief chemist, abroad and in U.S. since 1942.

Age 45; married; references.

9-19, 10-3, 10-17, 10-31

49-25

Education: High school, Lowell Evening Textile School, Northeastern University Evening.

Experience: Textile Chemist and Analyst.

Age 23; unmarried; references; Lawrence-Boston area preferred.

10-3, 10-17, 10-31, 11-14

49-15

Education: Equivalent of U. S. college, with some graduate work; also 5 months in U. S. A.

Experience: 9 years; since 1945 as dyeing master in mill of 900 employees specializing in wool.

Age 32; married; references; citizen of Denmark seeking position in North America, particularly southwest U.S.A.

10-3, 10-17, 10-31, 11-14

49-26

Education: Textile institute graduate, chemistry, dyeing and finishing.

Experience: Operations, administration and laboratory, quality control and product development.

Age 32; married; references; New England preferred. 10-17, 10-31, 11-14, 11-28

49-27

Education: B. S. in Chemical Engineering.

Experience: Research Chemist and Bleachery Foreman.

Age 35; married; references.

10-17, 10-31, 11-14, 11-28

Patent Digest—

(*Continued from Page 756*)

hyde. The condensates have the advantage of being fixed at temperatures of about 90°C. Although the specification refers principally to printing white pigments (titanium dioxide) as local delustrants, colored pigments can likewise be applied. According to an example the components (biguanide and aldehyde) are warmed to 70°C. and after their cooling some tartaric acid is added. The acid solution is stable for several days. The printing paste contains a solution of gum trag and titanium dioxide. The fixation is effected on a tenter frame at 90°C. A dull pattern with sharp outlines on a lustrous ground, fast to washing, results.

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U. S. Pat. 2,248,696, 1941 (Interchemical Corp.) is one of the patents of the "Aridye" series comprising printing a pigmented emulsion of the water-in-lacquer type.

Other references are:

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Brit. P. 480,316 and 482,345 (Ciba): pigment fixation is carried out with melamine-formaldehyde precondensates at temperatures below 90°C.

Cellulose Acetate Fabrics— Two Colored Effects in Partial Saponification D, 1

U. S. Pat. 2,475,672
(Celanese Corp. of America, Mellor, Mann, July 12, 1949)

Special effects on cellulose acetate fabrics are obtained by carrying out the saponification to a substantial degree on one side of the fabric while the other side remains unsaponified or at least saponified to a lesser degree. By dyeing a fabric pretreated in this way in a dyebath containing a mixture of direct and water dispersible acetate dyes, the fabrics will appear in a different shade on either side. A similar effect was obtained up to now only by using special fabrics woven from acetate rayon and cotton or viscose, showing the cellulose filaments more on the surface of one side and the acetate threads on the other side predominantly (*Schwarzschild process, mentioned below*). This style can now be imitated by using a pure acetate fabric. Conveniently, the saponification agent is applied to the fabric in form of a tragacanth thickened printing paste; inorganic thickeners such as Fuller's earth, kaolin, bentonite, etc., can likewise be used. It is further suggested to apply to one side of the material which has to remain in unsaponified state a mechanical resist to prevent penetration of the saponifying agent (for instance gums, fats, waxes or higher fatty acids). An example calls for padding an acetate fabric with stearic acid solution either in form of an aqueous ammonia soap or of the acid in perchloroethylene solution, drying, printing with a 10% caustic soda paste, hanging for 1-5 min. in the air and quickly neutralizing the alkali with hydrochloric acid. After rinsing, the goods are dyed with a mixture of acetate dyes of the anthraquinone or diphenylamine type and direct dyes. One side of the fabrics appears in a chocolate shade, the other one in a yellow-brown color.

References cited by the Patent Office among others:

U. S. Pat. 2,248,048, 1941 (Celanese) describes the local application of a high boiling solvent (diacetone alcohol) thickened with carboxy ethyl cellulose to obtain two-colored effects.

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U. S. Pat. 2,020,698, 1935 (Celanese): alkali is applied as a saponifying agent to pile fabrics which are thereupon subjected to pressure so that differences of shade in a subsequent dyeing operation result as well by different degrees of saponification as by the variation of the angles of the pile filaments.

Other references: U. S. Pat. 2,058,574 (Dreyfus) indicates that the effect of alkaline saponification on acetate of cellulose can be controlled by a treatment with oil emulsions, oil or oleic acid.

B. P. 490,532 (Celanese) obtains two-colored effects on pile-fabrics consisting of a cotton ground and acetate threads. The cellulose part is first dyed with direct dyes; after drying, the top of the pile threads is superficially saponified by applying a caustic paste and eventually the fabric is dyed with acetate dyes which leave the saponified tops almost uncolored.

Sulfur Dye Preparations— Printing Pastes Containing Alkylolamines D, 2, 01

U. S. P. 2,472,052
(American Cyanamid, Conn—May 31, 1949)

Printing sulfur dyes has presented a serious problem because of the poor solubility of these dyestuff types. Solutions in high concentrated sulfuric acid or in some selected organic solvents (e.g., aniline or naphthalene) are excluded for technical and economical reasons. Thus, for dyeing purposes the only way to dissolve these dyes was to mix them with alkalisulfides, hydrosulfides or polysulfides and stir the mixture with hot water until they appeared to be sufficiently dissolved. This method, however, could not be applied in the printing field because of the corroding action of the sulfides on metal printing equipment, particularly on copper rollers. Prints of dark shades such as navy blue or black, in using the inexpensive sulfur dyes, were often attempted with no practical result attained. The present patent is claimed to solve the problem by dispersing sulfur dyes with aliphatic alkylol-amines, having a free amino-hydrogen (e.g., monoethanolamine, diethanolamine, 3-amino-propanol-1 and so forth) limiting the chain length of the alkyl used with maximum 5. All sulfur dyes which are obtained by reacting sulfur with organic bases or the well known black and brown products and which are prepared by heating sulfur with sawdust, carbohydrates and tannery by-products, are within the scope of this invention. The reaction, consisting of the dissolution of the dye in an alkylolamine is not quite understood but the theory is advanced that the sulfur dye is reduced, the amine acting as a reducing agent for the disulfide- or polysulfide linkage characteristic of the dyestuff. Besides unlike purified dyes, the wet dye press cakes can immediately be worked up with the amine thus rendering the process still more economical. It is of particular advantage in the printing technique that no free sulfides are present in the paste. One of the examples gives a printing formula for the Sulfur Navy Blue C.I. 959 (i.e. Immediaindone R or RR or similar products,) heated to 80-90°C. with 5 times its weight of monoethanolamine until a filterable solution is obtained. By further heating to the boil the dyestuff can even be

reduced to the leucocompound without adding any special reducing agent. Another example comprises the dissolving of Bordeaux Sulfur Dye C.I. 1012 (Immedial Bordeaux B or parallel products) with eight times its weight of diethanolamine.

References cited by the Patent Office among others:

U. S. Pat. 2,373,261, 1935 (Southern Dyestuff Corporation): a liquid sulfur dye composition, containing no reducing agents, is obtained by applying a mixture of aliphatic straight chain, non substituted polyethylene polyamines (e.g., triethylene tetramine).

U. S. Pat. 1,977,250—53 (I.G.) recommends the pasting of vat- or sulfur dyes with condensates of epichlorohydrin with organic amines while U. S. Pat. 2,117,623 or French P. 821,750 (I.G.) mentions monoethoxy ethylene diamine as a vat dye pasting agent.

Crease Resistance—Testing Method and Apparatus H, 2, 01

U. S. Pat. 2,479,303
(American Cyanamid, Boor and Fluck, Aug. 16, 1949)

This specification describes a process and an apparatus for determining the crease resistance of textile fabrics. The method is based on standard determinations of the "creasing angle", principally consisting of folding a fabric, placing weight thereon, removing the sample after a certain time, inserting a wire under the apex of the sample and allowing the legs of this sample to move freely to form an angle by the elasticity of the material to be tested. The angle measured between the two legs is proportional to the specific crease resistance; it indicates the complete or partial recovery to the formerly flat state of the specimen. The inventors object, however, in that no reliable results can be expected here since the sample must be picked up and transferred to the measuring instrument by hand. Moreover this method does not consider the tendency of the legs, which are suspended vertically from the wire, to approach one another due to their natural weight. This later invention suggests the following modification: the creaseproofed sample has to be folded over a thin edge (3) and be clamped in this position by a spring-pressed device (see Fig. 3) which exerts a predetermined pressure. The sample is left in this clamp for a certain time, whereupon the pressure is released. The apparatus is provided with a movable protractor (7) and an arm (8)—see Fig. 1—which can be moved around the axle to coincide with the angle of the folded specimen. This operation is evidently carried out without handling the treated material after being folded. The pressure device, being an essential part of this construction, consists of two jaws (12, 14 and 13, 15 respectively). The coil spring (17) bears against the head of the screw (16) and on the other side against the flange (12), tending to approach the jaws. The tension of spring (17) may be adjusted by turning the screw (16). A thumbpiece (18) is further connected with the flange (12). By pressing this piece to counteract the tension of the spring (17), the jaws (14 and 15) can be separated to insert the sample, whereupon release of the pressure causes the jaws to close again, thereby exerting the necessary pressure. After some time the clamp is removed without touching the specimen. The protractor (7) and arm (8) are then adjusted so that their lines (18, 19) coincide with the angle formed by the legs of the specimen. This angle can quickly be determined by reading the figure on the protractor. It has to be mentioned that the craesing angle is measured on this device on the apex, so that the figure obtained is not influenced by the tendency of the legs of the sample to droop because of their weight.

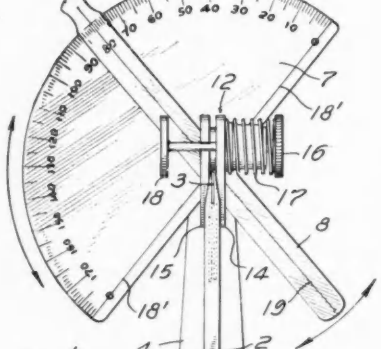

Fig. 1

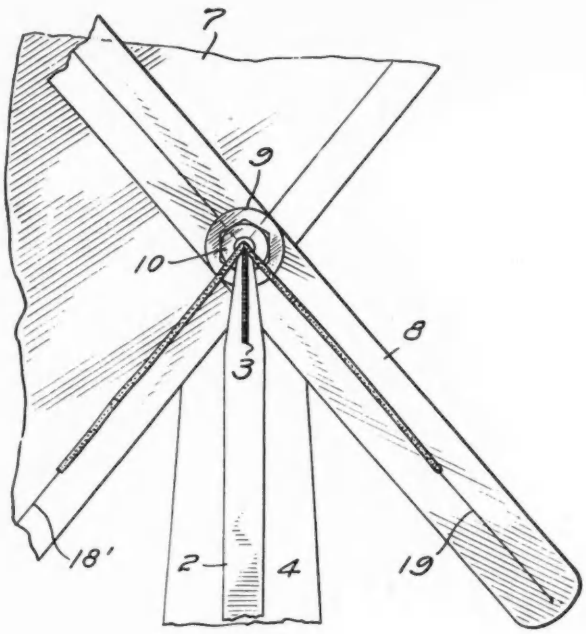

Fig. 2

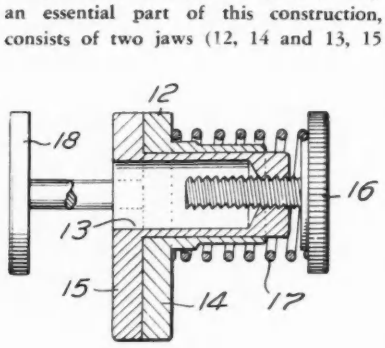

Fig. 3

References cited by the Patent Office among others:

U. S. Pat. 1,952,344, 1934 (Webber) describes a universal protractor having a transparent arm secured by hinges to the graduated body of the device.

U. S. Pat. 2,319,377 (Telbush) describes as a constructive detail a clamping device somewhat similar to that used in the present invention.

TRADE NOTES • NEW PRODUCTS

A. Myles Younger

• Younger News Atlas VP

George L. Wirtz, President of the Atlas Mineral Products Company, Mertztown, Pennsylvania, has announced that A. Myles Younger has been elected Vice President in Charge of Sales. Mr. Younger joined the firm as a Chemical Engineer in 1939 and in the interim has held positions as Midwest Sales Manager, Plant Manager of the California Plant, General Manager of the Texas Division, and General Sales Manager.

• Celanese Corp. Wins Award

Celanese Corporation of America, 180 Madison Ave., New York 16, N. Y., was announced the winner of the 1949 Chemical Engineering Achievement Award in recognition of the corporation's outstanding program of post-war developments in the chemical, textile and plastics industries. A committee of more than fifty senior educators from leading colleges and universities in 26 states voted the singular distinction to Celanese Corporation, which is the eighth corporation to be so honored since the award was established in 1933.

The Award was founded by McGraw-Hill Publishing Co. for the purpose of recognizing meritorious group achievement and of calling attention to progressive companies that have encouraged broader participation of chemical engineers in affairs of the process industries. It has been given in recent years for such epoch-making accomplishments as the harnessing of atomic energy, the development of synthetic rubber and the perfection of a process for producing streptomycin.

In addition to being accorded recognition for its achievements in the field of cellulose chemistry, Celanese Corporation of America was especially cited for its developments in petroleum chemistry. The latter resulted in the establishment, immediately after the war, of a large chemical plant near Bishop, Texas, where the company is now producing a wide range of chemicals for use in the chemical, textile and plastics industries.

Presentation of the award will be made at a dinner at the Waldorf-Astoria Hotel on Thursday, December 1.

• Named Assistant General Manager

Dr. William L. Walsh, of East Greenbush, N. Y., has been named Assistant General Manager of the General Aniline Works' (dyestuffs) Division of General Aniline & Film Corporation, 230 Park Ave., New York 17, N. Y., it was announced by Chandler T. White, head of the division. Dr. Walsh has been Manager of the Rensselaer, N. Y. plant since 1948.

At the same time, Mr. White announced the appointment of Dr. Joseph W. Lang as Assistant Plant Manager at Rensselaer. For the present, Dr. Walsh will continue as Rensselaer Plant Manager but will devote the greater part of his time to his new duties as Assistant General Manager.

Dr. Walsh joined the staff at Rensselaer as a Research Chemist in 1936 and two years later was placed in charge of the manufacture and development of azoic dyes. He was appointed Production Manager in 1942 serving in this capacity until he was made Plant Manager last year. A graduate of Boston College in 1931, he did graduate work at the Massachusetts Institute of Technology which led to the degrees of M.S. in 1933 and Ph.D. in 1936.

Dr. William L. Walsh

Dr. Joseph W. Lang

Dr. Lang joined General Aniline at Rensselaer in 1943 as head of the Chemical Engineering Group after nine years of research and chemical engineering work in the organic pigments field. In March 1948, he was made Supervisor of Production and in 1948 succeeded Dr. Walsh as Production Manager. He was graduated from the University of Washington in 1928 and received his M.S. in 1933 and Ph.D. in 1934 from Columbia University.

• N.E.T.F. Awards 76 Scholarships

The New England Textile Foundation, 68 South Main Street, Providence, Rhode Island, announces that it has awarded 76 $500 scholarships to students in the four New England Textile Schools for the 1949-50 scholastic year. They were awarded to freshmen, sophomores, junior, and seniors at Lowell Textile Institute (49), Bradford Durfee Technical Institute (3), New Bedford Textile Institute (4), and Rhode Island School of Design (20).

All freshman scholarships were awarded on the basis of a competitive examination given last April by the College Entrance Examination Board and the winners, in every case, were assigned to the textile schools of their choice. Most of the other scholarships were renewals for previous holders who had met uniform scholastic requirements. The Foundation reports that it will hold its freshman scholarship next April, as usual, and that high school seniors or graduates who will not be over 21 next July and who wish to compete should apply to the Foundation before next January 15th.

Robert Mishell, Dye Masters, Inglewood, California, shown with the Perpetual Trophy donated by Sandoz which he won at the Outing of the Pacific Southwest Section.

Outing, Pacific Southwest Section

THE First Annual Outing and Golf Tournament of the Pacific Southwest Section was held on July 29th at the Oakmont Country Club, Glendale, California.

The features of the outing were the golf tournament and putting contest. Russell B. Coleman, Section Vice-Chairman, presided at the dinner in the evening, which was attended by 50 members and guests. Charles H. Dunker, Outing Chairman, awarded the prizes to the members and guests for their participation in the events of the day. Mr. Dunker received the praises of all members for an excellent job in making the outing a success.

The Sandoz Chemical Works through the courtesy of Dave F. Driscoll, West Coast Manager, presented the section with a beautiful gold trophy. This perpetual trophy will be awarded annually for 1st Low Gross in the Gold Tournament.

Golf Winners

Booby Prize—Leon Olsen.

Members: 1st Low Gross—Robert Mishell.

2nd Low Gross—Frank Morton.

Members: 1st Low Net—Joseph De La Barre.

2nd Low Net—Norman Koehler.

Guests: Low Gross—Jimmie Sanderford.

Low Net—Arnold Styles.

Putting Contest: 1st Low—Dave Driscoll.

2nd Low—John Smith.

Respectfully Submitted

F. L. WILHELM, *Secretary.*

—♦ ♦—

Meeting, New York Section

THE first meeting of the New York Section for the 1949-50 season was held at Kohler's Swiss Chalet, Rochelle Park, New Jersey on Friday evening, September 23rd. An informal dinner preceded the meeting.

The Chairman, Charles W. Dorn, opened the meeting by introducing the officers and committee chairmen of the Section. He announced that meetings for the balance of the season would be held as follows:

November 18, 1949—Kohler's Swiss Chalet.

January 13, 1950—Hotel New Yorker.

March 3, 1950—Statler Hotel.

April 7, 1950—Kohler's Swiss Chalet.

May 5, 1950—Kohler's Swiss Chalet.

June 16, 1950—Outing.

Mr. Dorn also announced that Robert W. Brewer would again be Chairman of the Outing Committee for this season's outing. He stated, with regard to the National Convention in Atlantic City, that hotel accommodations would be available for all persons desiring them.

The speaker of the evening was Dr. Reginald C. Wakeman of Onyx Oil and Chemical Company who discussed "The Chemistry of Commercial Plastics". Dr. Wakeman illustrated his talk with an interesting display of samples.

The attendance was approximately 150.

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Patent Digest—

(*Continued from Page 756*)

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U. S. Pat. 2,479,303
(American Cyanamid, Boor and Fluck, Aug. 16, 1949)

This specification describes a process and an apparatus for determining the crease resistance of textile fabrics. The method is based on standard determinations of the "creasing angle", principally consisting of folding a fabric, placing weight thereon, removing the sample after a certain time, inserting a wire under the apex of the sample and allowing the legs of this sample to move freely to form an angle by the elasticity of the material to be tested. The angle measured between the two legs is proportional to the specific crease resistance; it indicates the complete or partial recovery to the formerly flat state of the specimen. The inventors object, however, in that no reliable results can be expected here since the sample must be picked up and transferred to the measuring instrument by hand. Moreover this method does not consider the tendency of the legs, which are suspended vertically from the wire, to approach one another due to their natural weight. This later invention suggests the following modification: the creaseproofed sample has to be folded over a thin edge (3) and be clamped in this position by a spring-pressed device (see Fig. 3) which exerts a predetermined pressure. The sample is left in this clamp for a certain time, whereupon the pressure is released. The apparatus is provided with a movable protractor (7) and an arm (8)—see Fig. 1—which can be moved around the axle to coincide with the angle of the folded specimen. This operation is evidently carried out without handling the treated material after being folded. The pressure device, being an essential part of this construction, consists of two jaws (12, 14 and 13, 15 respectively). The coil spring (17) bears against the head of the screw (16) and on the other side against the flange (12), tending to approach the jaws. The tension of spring (17) may be adjusted by turning the screw (16). A thumbpiece (18) is further connected with the flange (12). By pressing this piece to counteract the tension of the spring (17), the jaws (14 and 15) can be separated to insert the sample, whereupon release of the pressure causes the jaws to close again, thereby exerting the necessary pressure. After some time the clamp is removed without touching the specimen. The protractor (7) and arm (8) are then adjusted so that their lines (18, 19) coincide with the angle formed by the legs of the specimen. This angle can quickly be determined by reading the figure on the protractor. It has to be mentioned that the craesing angle is measured on this device on the apex, so that the figure obtained is not influenced by the tendency of the legs of the sample to droop because of their weight.

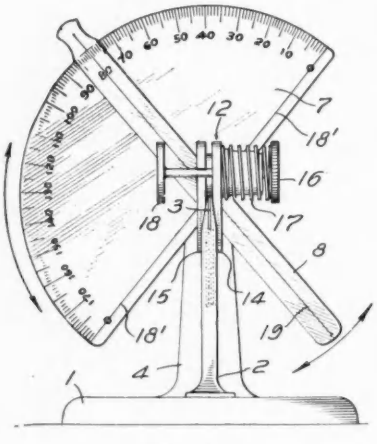


Fig. 1

Fig. 2

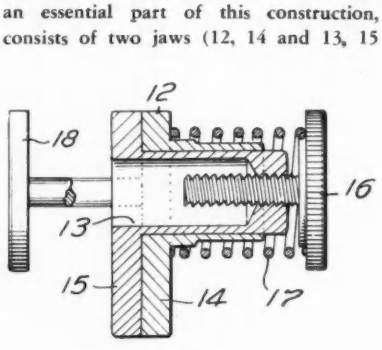


Fig. 3

References cited by the Patent Office among others:

U. S. Pat. 1,952,344, 1934 (Webber) describes a universal protractor having a transparent arm secured by hinges to the graduated body of the device.

U. S. Pat. 2,319,377 (Telbush) describes as a constructive detail a clamping device somewhat similar to that used in the present invention.

TRADE NOTES • NEW PRODUCTS

A. Myles Younger

• Younger News Atlas VP

George L. Wirtz, President of the Atlas Mineral Products Company, Mertztown, Pennsylvania, has announced that A. Myles Younger has been elected Vice President in Charge of Sales. Mr. Younger joined the firm as a Chemical Engineer in 1939 and in the interim has held positions as Midwest Sales Manager, Plant Manager of the California Plant, General Manager of the Texas Division, and General Sales Manager.

• Celanese Corp. Wins Award

Celanese Corporation of America, 180 Madison Ave., New York 16, N. Y., was announced the winner of the 1949 Chemical Engineering Achievement Award in recognition of the corporation's outstanding program of post-war developments in the chemical, textile and plastics industries. A committee of more than fifty senior educators from leading colleges and universities in 26 states voted the singular distinction to Celanese Corporation, which is the eighth corporation to be so honored since the award was established in 1933.

The Award was founded by McGraw-Hill Publishing Co. for the purpose of recognizing meritorious group achievement and of calling attention to progressive companies that have encouraged broader participation of chemical engineers in affairs of the process industries. It has been given in recent years for such epoch-making accomplishments as the harnessing of atomic energy, the development of synthetic rubber and the perfection of a process for producing streptomycin.

In addition to being accorded recognition for its achievements in the field of cellulose chemistry, Celanese Corporation of America was especially cited for its developments in petroleum chemistry. The latter resulted in the establishment, immediately after the war, of a large chemical plant near Bishop, Texas, where the company is now producing a wide range of chemicals for use in the chemical, textile and plastics industries.

Presentation of the award will be made at a dinner at the Waldorf-Astoria Hotel on Thursday, December 1.

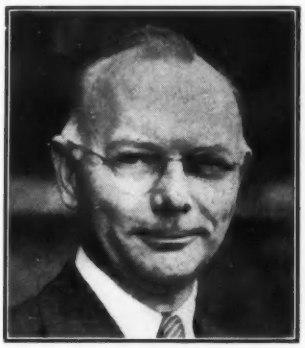
• Named Assistant General Manager

Dr. William L. Walsh, of East Greenbush, N. Y., has been named Assistant General Manager of the General Aniline Works' (dyestuffs) Division of General Aniline & Film Corporation, 230 Park Ave., New York 17, N. Y., it was announced by Chandler T. White, head of the division. Dr. Walsh has been Manager of the Rensselaer, N. Y. plant since 1948.

At the same time, Mr. White announced the appointment of Dr. Joseph W. Lang as Assistant Plant Manager at Rensselaer. For the present, Dr. Walsh will continue as Rensselaer Plant Manager but will devote the greater part of his time to his new duties as Assistant General Manager.

Dr. Walsh joined the staff at Rensselaer as a Research Chemist in 1936 and two years later was placed in charge of the manufacture and development of azoic dyes. He was appointed Production Manager in 1942 serving in this capacity until he was made Plant Manager last year. A graduate of Boston College in 1931, he did graduate work at the Massachusetts Institute of Technology which led to the degrees of M.S. in 1933 and Ph.D. in 1936.

Dr. William L. Walsh



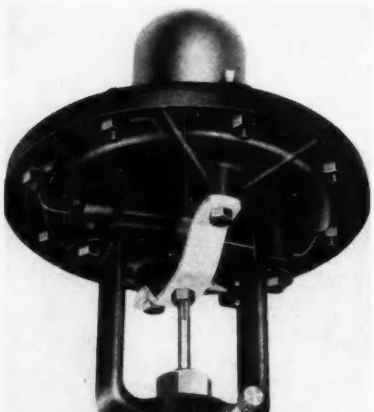
Dr. Joseph W. Lang

Dr. Lang joined General Aniline at Rensselaer in 1943 as head of the Chemical Engineering Group after nine years of research and chemical engineering work in the organic pigments field. In March 1948, he was made Supervisor of Production and in 1948 succeeded Dr. Walsh as Production Manager. He was graduated from the University of Washington in 1928 and received his M.S. in 1933 and Ph.D. in 1934 from Columbia University.

• N.E.T.F. Awards 76 Scholarships

The New England Textile Foundation, 68 South Main Street, Providence, Rhode Island, announces that it has awarded 76 $500 scholarships to students in the four New England Textile Schools for the 1949-50 scholastic year. They were awarded to freshmen, sophomores, junior, and seniors at Lowell Textile Institute (49), Bradford Durfee Technical Institute (3), New Bedford Textile Institute (4), and Rhode Island School of Design (20).

All freshman scholarships were awarded on the basis of a competitive examination given last April by the College Entrance Examination Board and the winners, in every case, were assigned to the textile schools of their choice. Most of the other scholarships were renewals for previous holders who had met uniform scholastic requirements. The Foundation reports that it will hold its freshman scholarship next April, as usual, and that high school seniors or graduates who will not be over 21 next July and who wish to compete should apply to the Foundation before next January 15th.



Foxboro Reversible Motor Stabilflo Control Valve

• Quick Reversibility in Control Valve

A new development in the design of air-operated control valves reportedly makes possible the quick reversibility of action which is the feature of the new Stabilflo Valve, according to the Foxboro Company, Foxboro, Mass. It is said that in a few minutes' time and without the use of special tools the new valve can be changed from "air to open" to "air to close", or vice versa; and it is not necessary to remove the valve from its installation or to shut down the controlled flow. The new valve is described and the simple reversing operation explained in an illustrated folder (Bulletin 2268) just published by the company. Copies will be sent on request.

• J. E. McKeen Pfizer President

John E. McKeen was elected President of Chas. Pfizer & Co., Inc., Brooklyn, at a special meeting of the Board of Directors on Tuesday, September 27th. Mr. McKeen, a Chemical Engineer, who formerly served as Executive Vice President, has been with the organization for 23 years. John L. Smith, former Pfizer President, who joined the Company in 1906, becomes Chairman of the Board of Directors, replacing George A. Anderson who joined Pfizer in 1910 and will remain as a Director of the Company.

Maynard E. Simond has resigned as President of F. Eberstadt & Co., Inc., and has been elected Chairman of the Executive Committee. Mr. Simond has been an active Pfizer Director since 1942.

John L. Davenport, Chemical Engineer with 20 years background with Pfizer, was elected Executive Vice President, and Herman A. Poitras, Chemical Engineer, was elected Vice President in Charge of Production to succeed Mr. Davenport. Allen J. Greene, a Chemical Engineer, was appointed General Production Manager to succeeed Mr. Poitras.

Albert A. Teeter, former Vice President of the Company, retired from his position as a Pfizer Director after 34 years with the Company. Jasper H. Kane, who is now Director of Biochemical Research and Production, was elected a Director of the Company to fill the vacancy created by Mr. Teeter's retirement.

• Silicates Booklet

Philadelphia Quartz Co., Phila., Pa., has introduced a 15 page pocket-size, illustrated booklet on the properties and uses of soluble silicates, (solution, lump and powders) in industry. Soluble silicate reportedly was first introduced for sale in the United States by this company in 1861. The silicates described are silicates of soda, silicates of potash, sodium metasilicate and sodium sesquisilicate. Analyses covering chemical characteristics, physical properties, alkali-silica ratio, degrees Baumé and basic advantages are given for nineteen of the more popular silicates.

Factual information is presented on the major classification of uses—such as adhesives, soap builders, detergents, cements, sizes and coatings. Miscellaneous commercial applications include: reaction with acids, sodium aluminate, and other materials to form catalyst, desiccant, base exchange gels, roofing granules, sizings, paints, water clarification, deflocculants and flotation reagents.

An easy-to-read chart discloses the chief advantage and property of the particular PQ Silicate suggested for each of the popularly known uses.

"Serving Industry" booklets are available upon request to Philadelphia Quartz Co., Public Ledger Building, Phila. 6, Pa.

• Tioga Drops Wool

Tioga Worsted Mills, for twenty years producers of fine worsted suitings, is devoting their entire plant to production of a new type of rayon suiting, it is announced.

The new suitings, in pick-and-pick sharkskins, glen plaids, checks and other fancy patterns, are finished with Superset and other American Cyanamid resins for wrinkle resistance and improved hand. Marcy Textile Company, 200 West 34th St., New York 1, N. Y., pointed out that this finish gives an excellent worsted type hand and makes the fabric highly resistant to mussing, wrinkling and crushing. The finish is claimed effective in spite of moisture or extreme perspiration and durable for the entire life of the garment.

The new fabrics are designed for ladies' coats, suits and sportswear and also men's wear and other types of uses for which wools and worsteds have been used in the past.

• Buffer Solutions for Calibrating pH Instruments

A new line of buffer solutions for calibrating any pH instrument is announced by Leeds & Northrup Co., 4934 Stenton Ave., Phila. 44, Pa. Nominal pH values are 4, 7, and 9; actual, 4.01, 6.86, and 9.16 at 25°C. Solutions are reportedly supplied in 1 pt. unbreakable, non-contaminating, re-useable polyethylene bottles on which are printed pH-temperature calibrations from 0 to 60°C. Buffers are made and checked after bottling to National Bureau of Standards specifications, the company states.

• Scheuer To Tour Europe

A two months tour of Europe during which he will call upon the agents and customers of Filo Color & Chemical Corporation, New York City, is planned for this month and November by S. C. Scheuer, President of the company. Mr. Scheuer may be contacted care of American Express Company in Paris, Zurich, Milan, Vienna, Prague, Amsterdam, and Brussels.

It is stated that the demand for the products of the company—chemical pigments, both dry and dispersed in various mediums, as well as dyes and intermediates—to replace the types formerly produced in Europe has encouraged the company to develop standards which in many cases reportedly are improvements over the foreign types. European manufacturers have indicated a preference for the company's improved standards in spite of the difficulty encountered in arranging for exchange of funds and the obtaining of import permits, the company states.

• New Standards Bureau Publication

A summary of investigations in the physical sciences carried on at the National Bureau of Standards during the fiscal year 1948 is contained in a 272-page illustrated booklet just published by the Bureau and now available from the U. S. Government Printing Office.

Scientific activities at the Bureau during the year were conducted by 13 divisions concerned with electronics, applied mathematics, atomic and molecular physics, radio propagation, electricity and optics, metrology, heat and power, chemistry, mechanics, organic and fibrous materials, metallurgy, mineral products, and building technology. A fourteenth division dealt with commodity standards. Of the numerous and varied projects carried out by approximately 100 sections within these divisions, those of greatest general interest and widest application have been selected as typical for description.

Included are the development of a magnetic fluid clutch having extensive applications and many unique features, research on resin-bonded papers, development of a proposed new standard of length based on the wave length of a mercury isotope, and further study of the properties of matter at very low temperatures. Space is given among others to extensive programs on nuclear radiations and high polymers.

The Annual Report of the National Bureau of Standards for 1948, 272 pages, 39 half-tone illustrations, 25 cents a copy, is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. The text of this report is also included in the 36th Annual Report of the Secretary of Commerce. Remittances from foreign countries must be in United States exchange and must include an additional sum of one-third the publication price to cover mailing costs.

The following are two of the publications by the National Bureau of Standards issued during August 1949. Copies may be obtained at listed prices from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

RP1996—*Ultraviolet Absorption Spectra of Seven Substituted Benzenes,* Ralph Stair, 7pp., 10 cents:—Report on the ultraviolet absorption spectra of seven substituted benzenes in the region from 220 to 300 millimicrons. The substances measured were *n-*, *iso-*, *sec-*, and *tert-*butylbenzene and 1,2-, 1,3-, and 1,4-diethylbenzene. Wavelengths for the absorption bands for each substance are shown, and spectral absorbency curves are given for the same concentration in each case. These spectral data should be of value for chemical analysis in the field of ultraviolet absorption spectroscopy.

RP1988—*Improved Single-Unit Schiefer Abrasion Testing Machine,* Herbert F. Schiefer, Lawrence E. Crean, and John F. Krasny, 17pp., 15 cents:—A greatly improved single-unit Schiefer abrasion testing machine and a number of new abradants for use with the machine are described.

The improved model of the Schiefer machine has been adapted to test a great variety of materials such as woven, knitted, and coated fabrics; plastics; paper; and leather under a wide range of test conditions. Abrasion of all of these materials was found to be extremely uniform over the abraded area. Results obtained with the machine readily show the effect of the amount of plasticizer in plastics and the effect of yarn and cloth construction in textiles. A quantitative method for measurement of abrasion, based upon the change in electrical capacitance of the specimen, was developed for textiles, and a quantity that is a measure of the destruction or ruin of the fabric is defined.

• Hooker Promotes Coleman

David M. Coleman has recently been promoted to the Sales Development Department of the Hooker Electrochemical Company, Niagara Falls, N. Y. J. S. Coey, Manager of Sales Development announced that Mr. Coleman will handle technical correspondence for all Hooker chemicals.

A graduate chemist of Worcester Polytechnic Institute, Mr. Coleman came directly to the Hooker Company in 1943 to work in fine chemicals production. He has been more recently associated with the Process Study Group and served two years with the Navy in the Pacific area.

• Margeson Speech

James P. Margeson, Jr., Executive Vice President of International Minerals & Chemical Corporation, Chicago, Ill., was one of the principal speakers on the program of the annual convention of the Controllers Institute in San Francisco on September 27. Mr. Margeson's subject was "The Controller Key to Profits".

• Wilcox Rubber Pinch Valve

In industrial jobs, where handling of corrosive liquids, semi-solids and dry granular materials is a part of normal operations, the Wilcox Rubber Pinch Valve (manufactured by Ray Wilcox Co., 1436-37 Land Title Bldg., Philadelphia, Pa.) overcomes difficulties common with the metal valve, it is stated.

Reportedly non-corrosive and non-clogging, this valve is especially recommended by the company for use in pipe lines handling pulp and paper stock, acids and salt solutions, lime slurry, wet and dry ash, granulated slate for roofing manufacture, sand, coal and other abrasive and corrosive slurries and liquids difficult to handle or injurious to metal valves. Its use is said to be applicable to any line except where the material being transported is damaging to rubber or where high temperatures are involved.

It is comprised of three essential parts (1) rubber tube, (2) pinching mechanism and (3) housing. The straight round tube with integral flanges is built of natural rubber reinforced with woven duck plies. A steel yoke with two half round steel members that are brought to a closing position by a screw arrangement comprise the operating or pinching mechanism. All operating parts, including the non-rising bronze screw, are outside of the rubber tube and are contained in a sealed cast aluminum alloy housing. Because the rubber tube is not fixed permanently within the valve housing, riding free when the pinch is off, its position can be changed by removing flange bolts and rotating the tube part of a turn to assure even wear on all sides, the company states.

The Wilcox Rubber Pinch Valve is said to always close easily and positively because the rubber compresses around any coarse particles and overcomes difficulties encountered with metal valves where coarse particles obstruct closing. Its exposure to freezing weather, where metal valves tend to freeze up, does not lessen its efficient operation, it is claimed. Other advantages claimed are that it provides excellent control, assures leak-proof shut-offs, gives very long life under most severe conditions and requires no maintenance over a long period of time.

Wilcox Rubber Pinch Valve

• Public Relations Consulting Service

M. Adolph Heikkila, until recently with the New Jersey Zinc Company, has announced the formation of a public relations consulting service at 35-15 91st Street, Jackson Heights, L. I., New York. Mr. Heikkila's service will include the creation of well-planned, company-wide public relations programs and all business activities that necessitate even one contact with the public.

Prior to becoming associated with the New Jersey Zinc Company where he directed the public relations efforts in connection with luminescent pigments and other new products, Mr. Heikkila operated his own industrial advertising agency for ten years. Before that he had been with Johns-Manville Corp., the old Vacuum Oil Co., and the Trade Division, Butterick Publishing Co.

• Textile School Deans Visiting England

To broaden their knowledge of textile educational concepts, methods and equipment a group of representatives of United States textile schools left October 6th on the Queen Elizabeth for a three weeks visit to England.

The trip is an extension of a program now in its seventeenth year, through which the heads of the U. S. textile schools have met semi-annually to discuss mutual problems. Heretofore, the meetings have been held at various cities between New Orleans and Quebec, Canada, and have been implemented by the interest and financial aid of the Textile Foundation. The trip to England is being financed mainly by the Deans themselves, but with supplementary aid from various textile firms, individuals and organizations.

As guests of the Cotton Board of Manchester, the deans are attending the Harrogate meetings of British textile manufacturers. The keynote of the session is "The Cotton Manufacturing Industry in a Changing World".

As guests of Sir Raymond Streat, Chairman of the Cotton Board, the group is spending a weekend at Buxton. This conference is being attended by a number of British educators, manufacturers and members of textile school faculties, and the occasion is providing the opportunity of intimate exchanges of information and opinion. A number of papers are also being delivered by British and American educators on such topics as "The place of research in textile schools", "General organization of curricula, philosophy of textile training, future trends", "Administration, financing, plant and equipment of textile schools", and "Textile executives relationship to textile schools and placement of graduates". The general purpose of these and other subjects of discussion is to acquaint textile school heads and instructors with the methods and principles employed in the several systems.

Other events include visits to laboratories, textile schools, mills, and the Manchester exposition of textile machinery and accessories.

The textile school officials who are making this trip confidently expect that the results will further their constant aim to make available young men and women well qualified to meet the exacting demands of our alert and progressive textile industries.

Those in the group are: Dr. Hugh M. Brown, Dean of Clemson College Textile School, Clemson, S. C.; Malcolm E. Campbell, Dean of the North Carolina State College Textile School, Raleigh, N. C.; Leslie B. Coombs, President of Bradford Durfee Technical Institute, Fall River, Mass.; W. D. Fales, Head of the Textile School at the Rhode Island School of Design, Providence, R. I.; Dr. F. M. Feiker, Dean of the School of Engineering at The George Washington University, Washington, D. C. (as well as the Textile Foundation Consultant on Textile Education); Kenneth R. Fox, President of the Lowell Textile Institute, Lowell, Mass.; Bertrand W. Hayward, Director of the Philadelphia Textile Institute, Philadelphia, Pa.; L. E. Parsons, Head of the Textile Engineering Department at the Texas Technological College, Lubbock, Texas; Edward T. Pickard, Secretary of the Textile Foundation, Kent, Conn.; and George Walker, President of the New Bedford Textile Institute, New Bedford, Mass.

• Graver Moves to New York

Graver Water Conditioning Co. announces the removal of its general offices to larger quarters at 216 West 14th Street, New York 11, N. Y. The Compay is a division of Graver Tank & Mfg. Co., Inc., which has manufactured and erected equipment for all water treatment and liquid conditioning processes for 40 years. The new location houses expanded sales and engineering offices, a complete chemical laboratory, and an extensive pilot plant. The extended operations of the company are said to provide individualized and complete technical, chemical, engineering and manufacturing facilities, and an undivided responsibility for furnishing and erecting its equipment, including hot process softeners, deaerating heaters, zeolite softeners, cation and anion exchangers, demineralizers, clarification and filtration apparatus, reactivators, chemical feeders, etc., for every industry.

• DCAT Elects Officers

Harold C. Green (L. Sonneborn Sons, Inc.) was elected Chairman of the Drug, Chemical and Allied Trades Section of the New York Board of Trade, Inc., 291 Broadway, New York 7, N. Y., at its 59th Annual Meeting. The DCAT, composed of approximately 700 leading manufacturers and distributors of drugs, chemicals and related products, met at Shawnee-on-Delaware, Pa., September 22-24. A new Executive Committee, elected at the Friday afternoon business session (Sept. 23), met at a special breakfast meeting next morning to elect officers. Other officers in addition to Mr. Green who will serve during the next fiscal year are: Vice-Chairman—Charles P. Walker, Jr., Citro Chemical Co.; Treasurer—Hugh S. Crosson, McKesson & Robbins, Inc. (re-elected); and Secretary—Helen L. Booth (re-elected). Carl M. Anderson, Assistant to President, Merck & Co., Inc., was re-appointed Counsel.

The retiring Chairman, Robert B. Magnus, Vice President, Magnus, Mabee & Reynard Inc., was elected Section Representative to the Board of Directors of the New York Board of Trade at Friday's meeting.

The personnel of the new Executive Committee (exclusive of officers) follows: Murray Breese, Murray Breese Associates; Stanley I. Clark, Sterling Drug Inc.; Paul H. Douglas, Bourjois, Inc.; James G. Flanagan, S. B. Penick & Co.; Russel J. Fosbinder, The Maltbie Chemical Co.; Claude A. Hanford, Pharmaco, Inc.; Robert A. Hardt, Hoffman-LaRoche, Inc.; William W. Huisking, Chas. L. Huisking & Co., Inc.; Robert L. Hutchins, Commercial Solvents Corp.; Charles M. Macauley, Pro-phy-lactic Brush Co.; George S. McMillan, Bristol-Myers Co.; E. L. Shattuck, Abbott Laboratories; William H. Sheffield, Jr., Innis, Speiden & Co.; Fred G. Singer, E. I. DuPont de Nemours & Co., Inc.; Gerald L. Smith, American Home Products Corp., and Lloyd I. Volckening, The Ivers-Lee Co.

• American Polymer Begins Operations

The American Polymer Corporation has begun production at its new plant near Springfield, Illinois. The corporation specializes in designing polymeric resins for the paper, leather, textile, adhesive and protective coating industries. The equipment at the new Springfield plant includes facilities for polymerizing vinyl, acrylic, methacrylic, styrene, acrylonitrile, allyl and similar polymers. George Marshall has been appointed superintendent and Richard Pease chief chemist of this new unit.

• Stamford Research Visitors

As a part of the third annual New England Research Tour, conducted under the auspices of the New England Council, a group of industrialists and technical specialists recently visited the Stamford (Conn.) Research Laboratories of the American Cyanamid Company.

Cyanamid's laboratories are among the largest maintained by any company in New England and more than 800 people are employed. The laboratories were established in 1936 and represent the consolidation of research activities for the many and varied interests of this company in fields ranging from pharmaceuticals and industrial chemicals to plastics and resins.

Members of the Council were addressed by Dr. E. H. Northey, Administrative Director of the Laboratories, and then proceeded to tour the buildings. They were shown how many of the activities conducted by the Research Laboratories of Cyanamid are of particular significance to such New England industries as plastics, rubber, textiles, tanning, agriculture, mining, and chemicals.

• Gurley Bulletin

Prodecures for various methods of testing paper, paperboard, textiles, plastics and other sheet materials, as well as the complete line of Gurley Instruments for performing the tests, are described in the new Bulletin No. 1400 which has just been published by W. & L. E. Gurley, Troy, New York.

Included in the 20-page booklet is information on the following instruments and accessories: Gurley-Hill S-P-S (Smoothness-Porosity-Softness) Testers; Gurley-Cobb Sizing Testers; Permeometers; Motor-Operated Stiffness Testers; Open Top, Closed Top and High Pressure Densometers; Densometer Gaskets and Automatic Timing Attachments.

Copies may be obtained by writing W. & L. E. Gurley, Troy, New York.

• National Adhesives (Canada) Emerges

On May 1st it was decided to change the name of Meredith, Simmons & Co., Limited to National Adhesives (Canada) Ltd. This change makes an association with National Adhesives (U. S.), National Adhesives (England) and Nationale Z. I. (Holland) complete in name as well as in work.

The company, which claims to produce every type of adhesive for industrial use, regards adhesives as a service definitely affecting production and operating costs. A constant interchange of information among all of National Adhesives' international works, laboratories and service offices reportedly keeps them fully aware of all new source materials, research advances and production techniques.

Head offices and works of the Canadian firm are in Montreal and Toronto where liquid and dry adhesives, Cellu products and hide glue are produced. Warehouse and service facilities are maintained at Vancouver and Winnipeg.

• Robertson Appointed

William J. Erwin, vice-president and general manager of the Ware Shoals Division of Riegel Textile Corporation, 342 Madison Ave., New York, N. Y., announces that William F. Robertson has been appointed as assistant general manager at Ware Shoals.

Mr. Robertson recently resigned as vice-president, general manager and director of North Carolina Finishing Company and as vice-president and director of Alexander Manufacturing Company, severing a connection of over 20 years standing.

• Laboratory Equipment Moved

The School of Textiles at N. C. State College, Raleigh, N. C., has moved laboratory equipment and other facilities into the east wing of its new $700,000 building addition.

The new four-story structure, which is attached to the southeast corner of the present School of Textiles Building, has been ready for use since mid-September when students reported for the fall term.

A west wing, which is attached to the southwest side of the present building, reportedly will be completed around December 1. The two wings, according to Dean Malcolm E. Campbell, will increase the school's floor space by 80 per cent and will include a wide range of modern equipment for research and teaching.

Construction work on the two structures was started several months ago. The $700,000 appropriation for the two units was made by the 1947 and the 1949 General Assemblies. The 1949 General Assembly appropriated an additional sum of $200,000 for new equipment for the School of Textiles.

When both wings are complete and the equipment has been added, the college's School of Textiles will be one of the most modern institutions of its kind in the world. It already is the world's largest school of its type and graduated nearly one-third of the nation's crop of 900 textile seniors last summer.

The architect for the new structures is J. N. Pease and Company of Charlotte, and the general contractor is T. A. Loving and Company of Goldsboro.

Dean Campbell reported that the third floor of the east wing will include the school's Yarn Manufacturing Department; the opening and picker room; and the carding, combing, and drawing machinery.

The second floor will house laboratories for the Department of Fabric Development as well as new looms and cloth inspection equipment.

The first floor will include the knitting laboratories, circular hosiery machines, underwear machines, full-fashioned hosiery equipment, Tricot knitting looms, and cutting and sewing machinery.

The basement will contain the developmental laboratories, hosiery and knit goods dyeing and finishing equipment, and the textile instrumentation laboratories.

Dean Campbell stated further that the west wing will also have four floors. The two top floors, he said, will consist of an air conditioned auditorium, with seating facilities for about 600 persons, and will have a stage with movable equipment designed for the display of laboratory instruments which are used for technical lectures. The auditorium will also be used for a wide range of other functions, including the B. B. Gossett Textile Lecture Series. This series, cites Dean Campbell, was made possible by a gift of $10,000 and will feature visiting textile experts.

Wool manufacturing laboratories will occupy the first floor of the west wing while the basement will include a microscopy laboratory, two air conditioned physical testing laboratories, and two photographic laboratories.

In addition to the new wings, the present building of the School of Textiles has been modified, it is said, to provide several new class rooms with sloping floors, a new Jacquard weave room, and new chemical research laboratories.

Dean Campbell has said that plans are now being made by the various department heads in the school to buy the new equipment as provided by the legislative appropriation of $200,000. He also said that a large portion of the new equipment would be specially built for dyeing and finishing work.

• Organic Chemicals Guide

The 1950 edition of the booklet, "Physical Properties of Synthetic Organic Chemicals," has just been issued by Carbide and Carbon Chemicals Corporation, New York 17, N. Y. This 16-page booklet has been designed as a condensed guide

for users of organic chemicals. It contains data on applications and physical properties for more than 200 synthetic organic chemicals. The material is presented in tabular form for ready and easy reference. Copies may be obtained without charge by writing to Carbide and Carbon Chemicals Corporation, 30 East 42nd Street, New York 17, N. Y. Ask for Form 6136.

• CCNY Textile Program

A practical working knowledge of textiles, both natural and synthetic, will be provided in the new program in "Fundamentals of Textile Converting", which will open at the City College Midtown Business Center, 430 West 50th Street, New York, tomorrow (October 18).

In announcing the new program, Dr. Robert A. Love, Director of the Midtown Center, said, "An extended survey conducted by the textile industry, which is one of the oldest and the second largest industry in America, revealed the need for specialized training which would help men and women develop a practical working knowledge and basic skills in the fundamentals of textile converting.

"In making our educational facilities and services available to the textile industry, we hope to help men and women in the industry meet the current trend of market requirements, and also help them operate at a profit through our 'learn-by-doing' methods of instruction which have proven successful in many other industry programs."

Herbert D. Wojan, a Textile Consultant with more than 30 years' experience in the Textile Industry, will supervise the new program, which will provide individual instruction in an informal workshop. Valuable contributions to the program reportedly will be made by the industry, which will furnish lecturers, visual teaching aids and materials, as well as demonstrating market trends.

Guidance in developing this new program in terms of the needs of the Textile Industry, has been given by the Textile Advisory Committee, consisting of Irene Blunt, Secretary, National Federation of Textiles; Herman Chopak, President, The Textile Distributors Institute; William B. Dall, Managing Editor, Textile World; W. P. Fickett, President, Textile Fabrics Association; Ephriam Freedman, Director, Macy's Bureau of Standards; Max W. Meyre, Shields Fabric Corp.; Alice C. Moore, Secretary, National Association of Finishers of Textile Fabrics; William Odom, Technical Consultant, William Barrell & Co.; Margaret Hayden Rorke, Managing Director, Textile Color Card Association of the United States, and John Schoberlein, Burlington Mills.

The new program is designed primarily for men and women who are employed in the Textile Industry and those who are interested in the converting of fabrics from the raw to the finished state. The course will cover the organization of the textile industry, the importance of distribution and the converter's part in it, a thorough study of fibers, yarns, fabric construction, types of fabrics, dyeing and printing, finishing processes, special and functional finishes, converting procedures, converting problems, and standards for the examining of finished goods.

The class will meet every Tuesday evening from 6:30 to 10:10 P.M., starting October 18 and continuing for 15 weeks.

• New Chemistry Books

John Wiley & Sons, 440 Fourth Ave., New York 16, N. Y. publishers, have announced that four new books in chemistry were scheduled for publication last month. These are:

"Organic Reactions," Volume V, edited by Roger Adams; "Boron Trifluoride & Its Derivatives," by H. S. Booth and D. R. Martin; "Principles & Practice in Organic Chemistry" by H. J. Lucas and David Pressman; and "Advanced Organic Chemistry," by G. W. Wheland.

In November, Wiley will bring out a new, third edition of "The Chemistry of Organic Medicinal Products," by G. C. Jenkins and W. H. Hartung. Volume 29 of the "Organic Syntheses" series, edited by Joseph Hamilton will appear the following month.

The same publishers have also made plans for releasing several chemistry books in January 1950, including:

"Heterocyclic Compounds," Volume I, edited by R. C. Elderfield; "The Chemistry of Industrial Toxicology," by H. P. Elkins; "Quantitative Ultra-Microanalysis," by P. L. Kirk; and "Analytical Absorption Spectroscopy," edited by M. G. Mellon.

Books of related interest to chemists and chemical engineers to be published between now and the end of the year include:

"An Introduction to Luminescence of Solids," by H. W. Leverenz (December);

"Elementary Pile Theory," by Harry Soodak and E. C. Campbell (December); and

"M. I. T. Index of Nomograms," edited by Douglas P. Adams (December).

Further information on any of these books may be obtained by writing to John Wiley & Sons.

• New Students at ITT

Eleven new students were welcomed to the Institute of Textile Technology today in brief exercises marking the opening of the 1949-50 session, the Institute's third academic year. Following remarks by President Ward Delaney, the Institute's educational program was discussed by Dean George H. Coleman, and Technical Director Warren F. Busse reviewed the research program. J. E. Dougherty of the textile engineering staff discussed the textile industry and its processes.

The orientation program continued through Sept. 23. Classes began Tuesday, September 27, when the second-year students returned from summer employment in mills.

The new students entering the Institute and who will work toward the M. S. degree are: S. P. Hersh, Winston-Salem, N. C., Barton L. Hinkle, Gladstone, Va., Elvan E. Hutchison, Huntington, W. Va., Robert W. Lenz, St. Albans, N. Y., Donald R. Roberts, Pawtucket, R. I., Malcolm A. Sanborn, Laconia, N. H., William C. Sheehan, Macon, Ga., Vernon C. Smith, Pittsburgh, Pa., James W. Sweeney, Lowell, Mass., Wallace O. Wilson, Camden, Ark., and Norman F. Young, Crawfordsville, Ind.

• Nopco Technical Training School

On Tuesday evening, October 4, Nopco Chemical Company opened the third session of its Technical Training School at its main plant in Harrison, New Jersey.

Lectures and demonstrations will be given weekly for a period of seven months. The classes, conducted by qualified members from the company's own technical staff, will cover many fields including textile processing, leather tanning, paper making, insecticides and metal specialties applications. They will also include discussions on oil and other raw material technology.

The school was originally established in 1936. Those attending are, for the most part, graduate chemists and sales trainees. Its purpose is to give the "students" a broad background in the fields approached by the company with its extensive line of surface active chemicals, metallic soaps and synthetic organic chemicals. The company feels that by having these key men completely familiar with the many manufacturing problems faced by industry, it can better serve the interests of its customers.

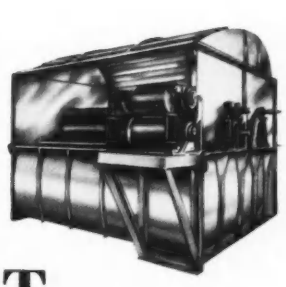
• Texas Company Fellowship

The Texas Company, 135 E. 42nd St., New York, N. Y., has renewed a graduate fellowship in textile engineering at the Georgia Institute of Technology, it was announced recently by Institute officials. This fellowship will permit continued investigations in the field of textile lubrication and will be carried on under the direction of Dr. F. L. Sweigert, Dean, Division of Graduate Studies.

One of a series painted for Rodney Hunt by Ben Stephenson

FAMOUS FINISHES . . *Sailing just under a nine-knot average for the entire course, the "Highland Light" set a record in the 1932 Bermuda Race by covering the 625 sea miles from Montauk to St. David's Head in less than three days. She sailed so fast that she arrived at the finish before the tug had established the line.*

THERE'S a "famous finish" in Ware Shoals, S. C., that we'd like to mention. It's the finish on cottons and rayons by Riegal Textile Corporation's Ware Shoals Division. Like many another "famous finish" in textiles, you'll find that Rodney Hunt finishing equipment is playing a key role. At Ware Shoals, Rodney Hunt Soaping Ranges are giving record production at record low costs. If you have a finishing problem — big or little — put it up to Rodney Hunt finishing engineers. Please turn the page for more specific information on "Finishing for Profit."



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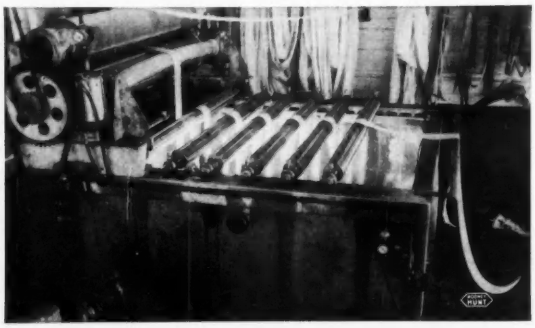

Fig. 1

Place:	Laboratory of Rodney Hunt Machine Co.
Test:	To determine tensionless qualities of "Tensitrol" Washer.
Equipment:	One standard stock "Tensitrol" Open Width Washer. One roll of toilet tissue.
Procedure:	Standard Open Width Washer threaded with toilet tissue in conventional manner that is used on all types of fabric. (See Fig. 1)

TESTS	RESULTS
1. "Tensitrol" Open Width Washer run at 120 yards per minute.	1. No breakage occurred in the tissue when run at this high speed.
2. Delivery rolls opened so that tissue remained stationary even though machine was running at 120 yards per minute. Delivery rolls brought together to start tissue through machine.	2. No breakage occurred in tissue when delivery rolls were brought in contact violently starting tissue through machine at 120 yards per minute.
3. Rod inserted under pass of tissue through machine and raised 12" to simulate shrinkage in actual machine. (See Fig. 2)	3. No breakage occurred and all passes through machine remained relaxed.

Conclusions:

Test No. 1 — The tissue was completely relaxed and tensionless because no perforations on the toilet tissue were broken during the running of this test.

Test No. 2 — The violent action of starting the tissue through the machine at 120 yards per minute did not break perforations in the tissue. This was further proof over Test No. 1 that the cloth was absolutely tensionless.

Test No. 3 — That, regardless of amount of stretch or shrinkage, any fabric would remain tensionless in the "Tensitrol" Washer.

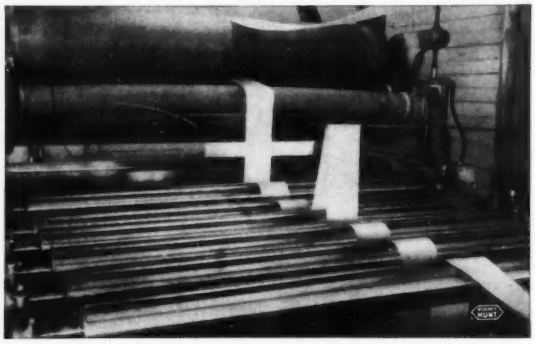

Fig. 2

SUBSEQUENT tests with all kinds of cloth and under all types of conditions plus what is most important, many months of hard usage in some of the largest textile plants in the country, have demonstrated the "Tensitrol" principle to be one of the really great advances in the textile finishing industry.

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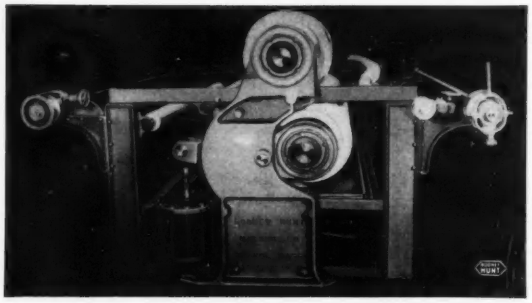

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If further information is desired on the above subjects, please address your inquiries to the Rodney Hunt Machine Co., Orange 10, Massachusetts, U.S.A.

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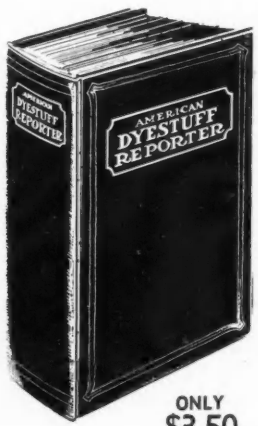

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STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 OF AMERICAN DYESTUFF REPORTER published bi-weekly at New York, N. Y., for October 1, 1949.

State of New York, County of New York, ss.:

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Norman A. Johnson, who, having been duly sworn according to law, deposes and says that he is the Editor of the AMERICAN DYESTUFF REPORTER, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily, weekly, semi-weekly or tri-weekly newspaper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Acts of March 3, 1933, and July 2, 1946, (section 537, Postal Laws and Regulations) printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

Publisher — Howes Publishing Co., Inc., One Madison Ave., New York 10, N. Y.; Editor — Norman A. Johnson, One Madison Ave., New York 10, N.Y.; Managing Editor — Charles A. Whitehead, One Madison Ave., New York 10, N. Y.; Business Manager — None.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

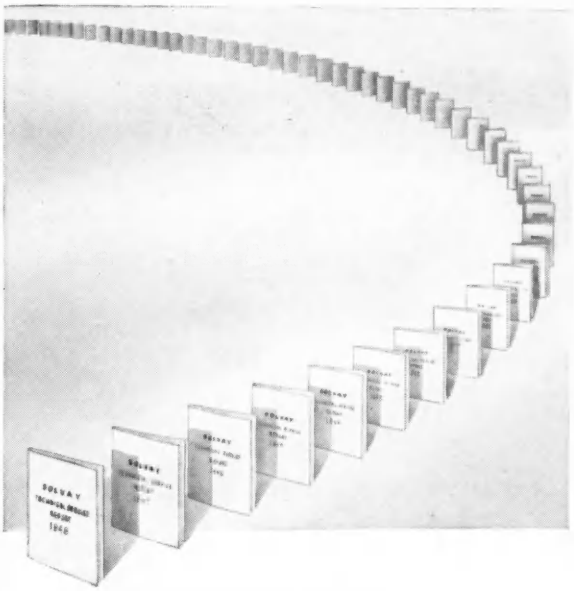
4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

NORMAN A. JOHNSON, Managing Editor.

Sworn to and subscribed before me this 23rd day of September, 1949.

(SEAL) CAROLINE ESSENBREIS

Notary Public, State of New York, No. 24-1132800, Qual. in Kings Co. Cert. filed with Kings and N. Y. Co. Clks. and Reg. Term Expires March 30, 1951.



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for water-repellent preparations

35.5-37.0% Al_2O_3 content

"Niaproof" Aluminum Acetate is readily soluble in water so that any strength of solution can be prepared as required.

ADVANTAGES OF "NIAPROOF" POWDER OVER SOLUTIONS:

STABILITY—No more losses due to precipitation of solutions.

PURITY—No injurious sulfates or chlorides to tender the fabric.

No contamination or discoloration from containers.

SAVINGS—Lower cost per pound of Al_2O_3 content.

Lower freight due to negligible water content.
Lower handling and storage costs.
Containers can be reused or resold.

ALUMINUM ACETATE

and

ALUMINUM FORMATE SOLUTIONS

also available

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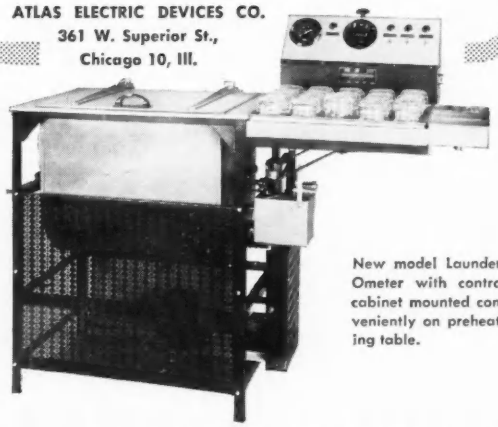

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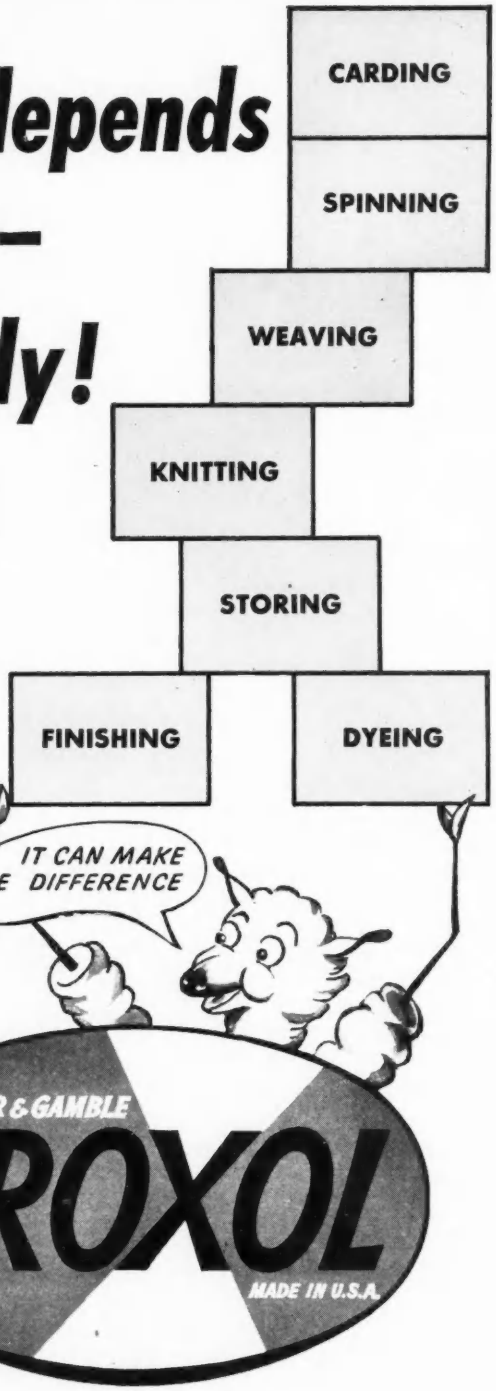

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It can make the difference between top notch results and endless troubles in carding, spinning, weaving, knitting, storing, finishing and dyeing operations.

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forms stable emulsions

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no corrosion

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fewer ends down

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Proxol will raise your sights on wool oil efficiency. It will pay you to investigate its many advantages.

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